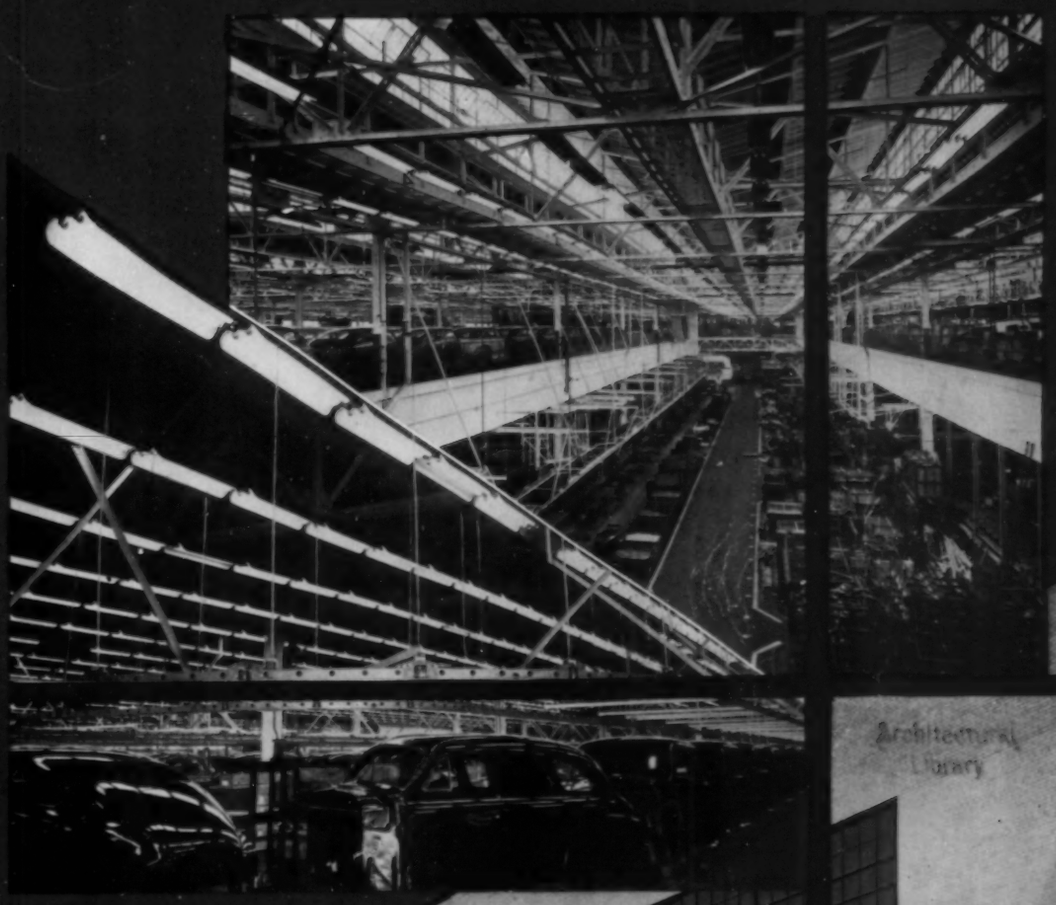
ARCHITECTURAL

RECORD

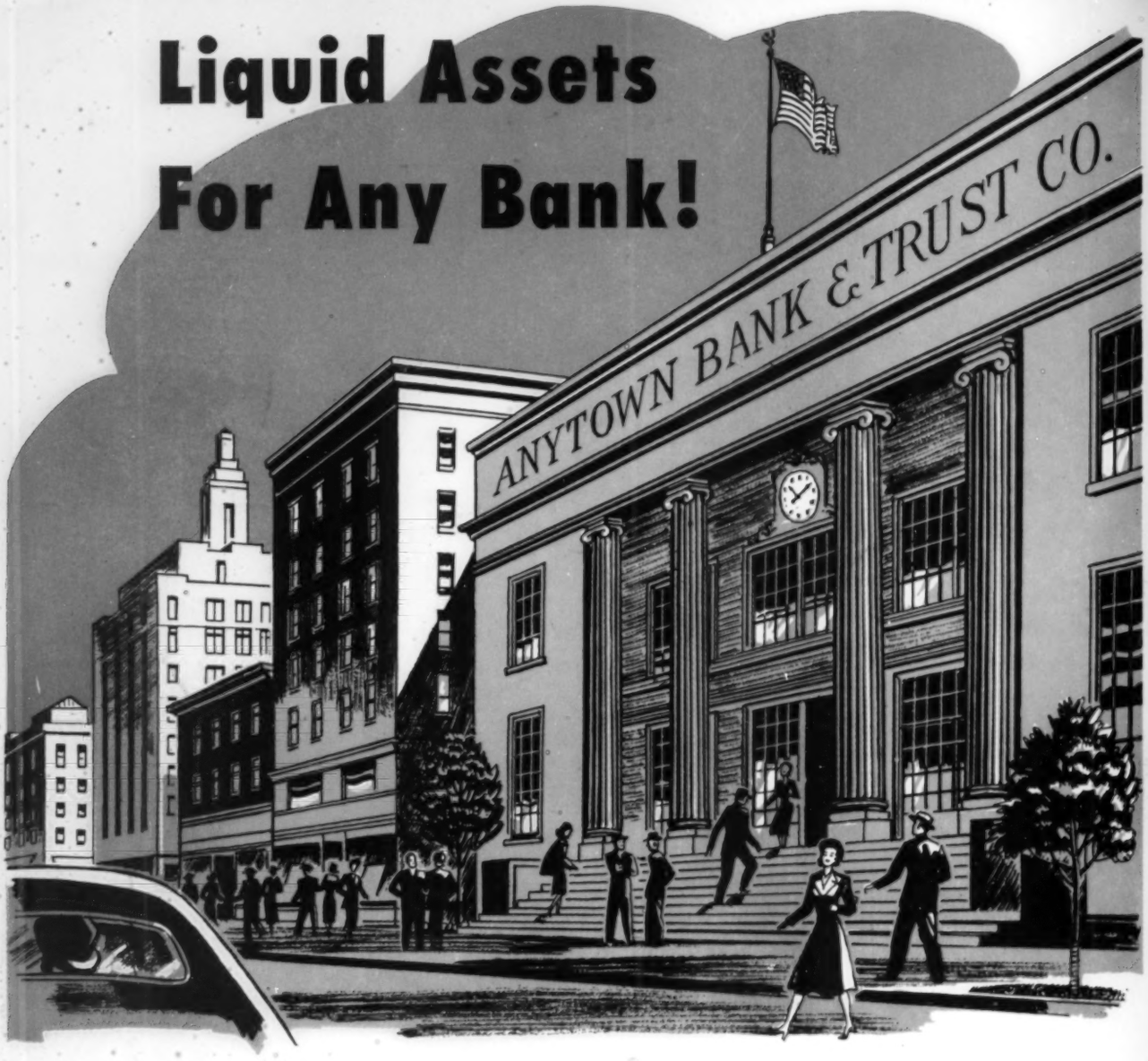


INDUSTRIAL BUILDINGS

Architectural Library

AUGUST 1948

Liquid Assets For Any Bank!



PROTECTION of millions of dollars of other people's property is a heavy responsibility.

And that responsibility begins right on your drawing boards.

Part of it . . . and an important part . . . is protection against dampness and moisture especially underground . . . foundations, floors, walls and vaults. No owner wants to "go below" and find his assets all wet.

Specify Flintkote products for this important job. You'll find them adequate for every waterproofing and dampproofing requirement on *any* structure, large or small.

Asphalt cutback primers and coatings . . . trowel and brush mastics . . . asphalt emulsions . . . mopping asphalts . . . spandrel cloth . . . asphalt saturated membrane . . . these are a few of the products in the Flintkote line for waterproofing and dampproofing.

And, of course, the famous, Flintkote-developed *Hydralt** protective coating in its many forms. These mineral colloid, asphalt emulsions won't flow under heat or carbonize under exposure. By test and by experience they *outlast any other known form of bituminous coating exposed to weather.*

You'll find complete specifications and data in Sweet's. And, for quick, handy reference, mail the coupon for our folder on Flintkote Products for Waterproofing and Dampproofing.

FLINTKOTE

Products for Industry

THE FLINTKOTE COMPANY, *Industrial Products Division*
30 Rockefeller Plaza, New York 20, N. Y.

Please send folder on Flintkote Products for Waterproofing and Dampproofing:

Name .....

Title .....

Company .....

Address .....

City ..... *State* .....

*Reg. U. S. Pat. Off. A. R. 8-48

FLINTKOTE INDUSTRIAL PRODUCTS

ARCHITECTURAL RECORD (Vol. 104, No. 2, August, 1948) is published monthly by F. W. Dodge Corp., 10 Ferry Street, Concord N. H., with editorial and executive offices at 119 W. 40th St., New York 18, N. Y. $4.50 per year; Foreign, $6.50.
(Regular Edition)

Entered as second-class matter at the Post Office, Concord, N. H., under the Act of March 3, 1879.

Vol. 104 • No. 2 August 1948

ARCHITECTURAL RECORD

F.W.DODGE CORPORATION

Copyright 1948 with all rights reserved F. W. DODGE CORPORATION • Publishing Director, Magazine Division, H. Judd Payne • **EDITORS:** Editor-in-Chief: Kenneth Kingsley Stowell, A.I.A.; Managing Editor, Emerson Goble; Senior Associate Editor, Douglas Haskell; Associate Editors, John W. Ragsdale, Florence A. van Wyck; Assistant Editor, Robert E. Fischer; Western Editor, Elisabeth Kendall Thompson; Associate in South America, Edmund J. Whiting, A.I.A. • **ART DEPARTMENT:** Myron S. Hall, 3rd, Director; Frances Torbert, Assistant; Peter Piening, Consultant; Sigman-Ward, Drafting • **CONSULTANTS:** Industry Relations Consultant, Thomas S. Holden; Statistical Consultant, Clyde Shute; Building Economics Consultant, Norbert Brown; Field Research Consultant, Clifford Dunnels, Jr.

WHICH WAY LIES FREEDOM? 87
An Editorial . . . by Kenneth K. Stowell

THE EIGHTIETH CONVENTION OF THE A.I.A. 88
Salt Lake City, Utah

PLANNED FOR TERRACE LIVING 92
House for Mrs. Paul Kingsley, Pacific Palisades, Calif. J. R. Davidson, Designer; Landscaping by Ernest Wertheim

A PIONEER SCHOOL IN THE SOUTHEAST 100
Fern Creek Elementary School, Orlando, Fla. L. Alex Hatton, Architect

STORE FOR THE BROWSING MUSIC LOVER 105
Gateway to Music, Inc., Los Angeles, Calif. Rolf Sklarek, A.I.A., Architect

BUILDING TYPES STUDY NO. 140 . . . INDUSTRIAL BUILDINGS . 108

AN ENLIGHTENED LOOK AT A FACTORY 108
One of the Nation's Most Progressive Industrialists Defines the Ideal Factory Building in Terms of His Own Concept of Management

FUNCTIONAL COLOR IN INDUSTRIAL BUILDINGS 118
By Julian Ellsworth Garnsey, Colorist

PROJECTS

Chevrolet-Flint Assembly Plant, Flint, Mich. Albert Kahn Associated Architects and Engineers; J. A. Utley, General Contractor 112

Factory for the Bayer Company Division, Sterling Drugs, Inc., Trenton, N. J. The Austin Company, Engineers and Builders 124

Factory for Chas. H. Phillips Co., Division of Sterling Drug, Inc., Gulfport, Miss. W. Stuart Thompson and Phelps Barnam, Architects; Guy B. Panero, Engineers 128

New Plant for Square D Company, Los Angeles, Calif. The Austin Company, Industrial Engineers and Builders 132

Plant for The Mengel Company, Fulton, N. Y. The H. K. Ferguson Company, Industrial Engineers and Builders 136

New Plant for Sapphire Hosiery Corporation, Telford, Pa. Lockwood Greene Engineers, Inc., Designers; A. Carl Stelling, Landscape Architect 140

ARCHITECTURAL ENGINEERING . . . Technical News and Research . . . 143

INDOOR-OUTDOOR PLANTING BEDS: Part 2 143
By Henry B. Aul, Landscape Architect

CONTROLLING MOISTURE IN BUILDINGS 145
Article 1: A Study by HHFA Indicates that the Soil Is, Surprisingly, the Source of Many Serious Condensation Problems

ENGINEERING APPROACH TO HOUSE DESIGN 149
Bureau of Standards Report Suggests Design Methods for Determining Adequate Strength of Houses without Waste

PRODUCTS . . . for Better Building 151

MANUFACTURERS' LITERATURE 152

TIME-SAVER STANDARDS 155
Indoor-Outdoor Planting Beds: Selection of Plants. By Henry B. Aul

THE RECORD REPORTS . . . News from the Field 7

CONSTRUCTION COST INDEXES 26

REQUIRED READING 28

LETTERS FROM RECORD READERS 178

ON THE JOB WITH TOURNALAYER 180

EMPLOYMENT OPPORTUNITIES 230

INDEX TO ADVERTISEMENTS 248

COVER: Chevrolet-Flint Assembly Plant; Albert Kahn Associated Architects and Engineers. Hedrich-Blessing photos

Architectural Record (combined with American Architect and Architecture) is published monthly by F. W. Dodge Corporation, 10 Ferry St., Concord, N. H., with Editorial and Executive Offices at 119 West 40th Street, New York, N. Y. Western Editorial Office, 2813 Channing Way, Berkeley, Calif. Thomas S. Holden, Pres.; Howard J. Barringer, Vice-Pres. and Treas.; Irving W. Hadsell, Vice-Pres.; Chauncey L. Williams, Vice-Pres.; Sanford D. Stockton, Jr., Secy.; Walter F. De Saix, Asst. Treas.; Edwin H. Freed, Asst. Treas. Member Audit Bureau of Circulation and Associated Business Papers, Inc. Architectural Record is indexed in Reader's Guide, Art Index and Industrial Arts Index. Subscription rates: United States and Possessions, Canada, Cuba, Mexico, Central and South America, and Spain, $4.50 the year, $7.50 for two years, $9 for three years; elsewhere, $6.50 the year, $11.50 for two years, $15 for three years. Single copy, $1. Circulation Manager: Marshall T. Ginn. Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage. Other Dodge Services: Real Estate Record & Builders' Guide, Sweet's Files, Home Owners' Catalogs, Dodge Reports & Dodge Statistical Research Service.

Adjustable Flush Valves Overwhelmingly Preferred

by 7 out of 8 ARCHITECTS

Based upon 288 replies from an unbiased survey made among 500 architects selected at random from the distribution list of Sweet's Architectural Catalog File.

by 20 out of 21 PLUMBING CONTRACTORS

Based upon 508 replies from an unbiased survey made among 1,154 of the country's leading plumbing contractors, including those registered at the 1947 N.A.M.P. Convention.

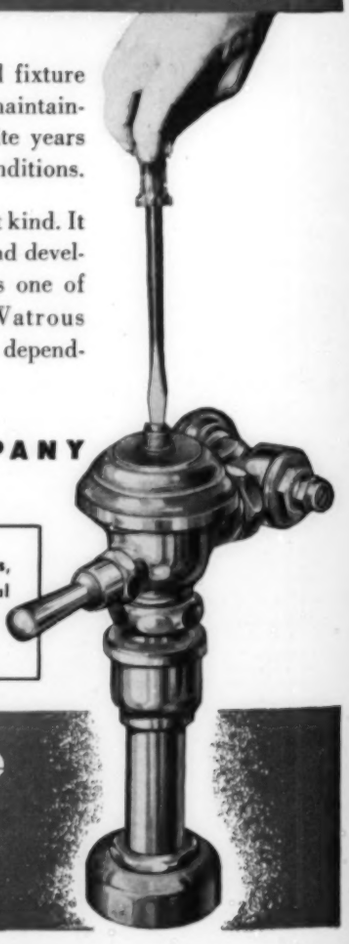
by 8 out of 9 FLUSH VALVE USERS

Based upon 247 replies received in an unbiased survey conducted among 458 hospitals, schools, hotels, office buildings, and similar public and commercial buildings; lists supplied by publishers of leading trade magazines.

Seldom has a single feature of any product received such overwhelming endorsement. These surveys show that all those who have anything to do with flush valve selection, installation, or maintenance vote almost unanimously in favor of making flush valves adjustable.

If you have a job that needs flush valves, be sure you get the kind that *can* be adjusted to provide maximum water savings according to the needs of each individual fixture . . . the kind that is fully capable of maintaining peak operating efficiency despite years of service or changing operating conditions.

All Watrous Flush Valves are that kind. It was Watrous who first pioneered and developed the adjustable idea, and it is one of many contributions that make Watrous Flush Valves today outstanding for dependability and lasting economy.



THE IMPERIAL BRASS MANUFACTURING COMPANY
1240 W. Harrison Street, Chicago 7, Illinois

For complete information on Watrous Flush Valves see Sweet's Catalog, or write for Catalog No. 448A. Also ask for Bulletin 477 giving a summary of "Architects' Views on Flush Valve Applications."

A few additional words in your specifications, such as: "All flush valves shall have an external adjustment for length of flush," will bring all the above advantages.

Watrous Adjustable Flush Valves
BOTH DIAPHRAGM AND PISTON TYPES

THE RECORD REPORTS

Congress Adjourns with T-E-W Bill Shelved and FHA Title VI not Renewed • OK'd Defense Controls May Affect Building • Hospital Program Pushed

No matter who sits in the White House next year, housing will remain paramount in the operations of the federal government. Everyone in Washington thinks so. While some of the excitement has eased since the hectic days that brought Wilson Wyatt into the national set-up to speed home building, the postwar construction saga still has a long way to go.

This was made clear not only by the failure of Congress to act on the Taft-Ellender-Wagner housing bill but also by the action of the Republican convention in Philadelphia in placing a housing plank in the party platform.

Rather than putting through the T-E-W measure, Congress approved, in its closing hours, a piecemeal housing bill — S. 2790 — which portends a drastic drop in federally-aided large scale rental housing construction in October. At least those who follow financing trends are looking for the reserve of approved loan construction to take a sharp dip beginning in that month. This, they say, is an inevitable result of the failure of Congress to renew Title VI FHA loan guarantees, thus knocking the prop out from under a sizeable part of the credit structure in home building.

The bill affects three million or more home-seeking citizens no less than the hotly-contested issues of ERP, the draft, civil rights, income taxes, etc. All these were crowded into the last minute legislative debate, complicating the final consideration of all bills.

Committee Urgings Ignored

In its haste to adjourn, Congress ignored the advice of its Joint Committee on Housing by failure to enact extension of Title VI FHA home loan guarantees. This had been proposed to satisfy the short-term needs of home builders. In respect to long-term requirements, Congress ignored again its committee's recommendations except for one thing — the 95 per cent loan guarantees to veterans who wish to combine their housing efforts and build cooperatively.

The construction industry, therefore, is adjusting to a new, less liberal financing policy. This policy (1) permits lending institutions to sell 25 per cent of their portfolios of GI home loans and certain other insured mortgages to the secondary market provided in the Federal National Mortgage Association, if those loans cover construction meeting FHA standards, and (2) permits FHA to insure up to 95 per cent of loans for the nonprofit veteran cooperatives. (In the first instance, only 25 per cent of those loans held by banks or other lending institutions and qualified under FHA standards can be sold to FNMA to make room for more lending potential.)

In view of these developments, builders have been turning in increasing numbers to Title II of the National Housing Act of 1937. This permits 90 per cent loan insurance based on long-term economic value of the building. The "necessary current cost" formula of the former Title VI loan insurance has yielded to the long-term financing policy. Credit experts believe all this adds up to a new and tightening finance trend on the part of federal government. They believe the transition period so long talked of — from more liberal to less liberal credit in the home financing field — has arrived.

T-E-W Provisions Pending

Other points urged by the Joint Committee on Housing but smothered in the final hours of the session were those controversial features of the T-E-W bill: low-rent public housing and aid to cities for reconstruction of blighted areas. In this connection there was promise from Senator Robert Taft of Ohio and Representative Jacob Javits of New York that these requests would be revived at the next congressional session.

Still other recommendations of the Joint Committee which will see further debate are farm-housing as a comprehensive program, technical research studies by HHFA, and intensified government study of housing needs. These all were included in T-E-W, which had the general approval of the American Institute of Architects.

The point should be made here of a new tax provision in the bill as it came out of the House Banking and Currency Committee in a revised form. This provision was designed to give a tax incentive for rental housing. It accelerates amortization deductions. Deductions are "allowable over a period of 60 months and the deduction with respect to each month of such period shall be for 50 per cent of the cost of a facility divided by 60." This may be the forerunner of similar provisions to come in later legislation. The Joint Housing Committee in its report, it will be remembered, discussed tax incentives as a means of stimulus to building.

Housing Provisions Numerous

Despite the fact that no major housing bill was passed, the 80th Congress did push through a number of measures affecting housing. The record shows that it:

1. Continued rent controls to March 31, 1949, approving the voluntary 15 per cent rent increases.

(*Continued on page 10*)

"I had no idea how far south I really was until I ordered that solar roof —"

— Drawn for the RECORD *by Alan Dunn*

ANNOUNCING $2,750.00

HIDDEN TALENT COMPETITION

sponsored and conducted by THE MUSEUM OF MODERN ART

and ARCHITECTURAL RECORD

APPROVED BY THE A.I.A. COMMITTEE ON SECONDARY COMPETITIONS

Professional Advisers

PHILIP C. JOHNSON, Consultant to the Department of Architecture, The Museum of Modern Art

KENNETH K. STOWELL, A.I.A., Editor-in-Chief, *Architectural Record*

Purpose The purpose of the competition is to discover and encourage latent architectural talent by rewarding the successful competitors with cash awards and both local and national publicity. Winning designs will be placed on exhibition at the Museum of Modern Art in New York and will be given national publicity through publication in the *Architectural Record*. In addition, material for local publicity will be provided.

Prizes

FIRST PRIZE	$1,000.00
SECOND PRIZE	750.00
THIRD PRIZE	500.00
TEN HONORABLE MENTIONS $50 each	500.00
TOTAL	$2,750.00

TEN PRIZES each consisting of a three-year subscription to the *Architectural Record* and a year's membership in the Museum of Modern Art.

Competitor Eligibility Any architect, designer, draftsman, engineer or student residing in the continental U.S.A. shall be eligible to compete, providing that no building or architectural design of his shall have been published with his name as architect or designer, in any national magazine.

Since the object of the competition is to uncover individual talent, the design submitted must be the work of a single person, *not* of collaborators or a group.

Name . . . . . .
(Please Print)

Street Address . . . . . .

City . . . . . *Zone* . . . . . *State* . . . . . .

My suggestions for members of the jury are:

_____

_____

_____

_____

_____

In submitting a design for this competition, I agree to abide by all of the conditions set forth in the Competition Program.

Signed _____

ENTRY BLANK

TO: PROFESSIONAL ADVISERS,
HIDDEN TALENT COMPETITION,
C/O ARCHITECTURAL RECORD,
119 WEST 40th STREET,
NEW YORK 18, NEW YORK

Please send me, at the above address, the Program for the HIDDEN TALENT COMPETITION

Design Problem The problem is the design of a memorial community center for a town in the Middle West.

Basis of Award The program calls for a public building — that is, one which will arouse civic pride as well as serve its particular function. The Jury will, therefore, pay special attention to the aesthetic aspects: character, proportion, scale, spatial arrangement and use of material.

Jury of Award The Jury shall consist of five recognized architects chosen by the Museum of Modern Art and the *Architectural Record*, whose names shall be announced on the first day of the judging.

Suggestions for Jury (Optional) Each competitor may submit the names of five architects whom he would like to have selected as members of the Jury.

Dates The Program will be issued September 6, 1948.

The Competition will close 5 P.M. Eastern Standard Time, November 8, 1948, and all drawings must be delivered, or postmarked by the Post Office before that time. Drawings must be addressed to HIDDEN TALENT COMPETITION, The Museum of Modern Art, 11 West 53rd Street, New York 19, New York.

Judging will commence on December 3, 1948, at the Museum of Modern Art.

Exhibition and Publication The winning and other selected designs will be exhibited at the Museum of Modern Art in February, 1949. Winning designs will be published in the *Architectural Record*.

Entry Blanks The entry blank signifies merely the intention to compete, and does not constitute an obligation to submit drawings. Entry blank must be sent promptly to Professional Advisers, HIDDEN TALENT COMPETITION, c/o *Architectural Record*, 119 West 40th Street, New York 18, New York. Cut out and send the entry blank printed above.

THE RECORD REPORTS

(*Continued from page 7*)

2. Lifted all remaining restrictions from the building of amusement and recreation structures.

3. Extended Title VI mortgage insurance through April 30, 1948, after a previous extension to March 31, 1948, and provided insured financing to prefabbers.

4. Extended lending powers of Reconstruction Finance Corporation.

5. Amended the U. S. Housing Act of 1937 to allow Public Housing Administration to raise limits on cost of public housing. This permitted an increase wherever local bodies were willing to assume the difference on their own.

6. Authorized Veterans Administration to make grants up to $10,000 or half the house cost, whichever is less, to paralyzed veterans who need specially designed homes. VA says around 1800 will be eligible for such assistance. Plans

(*Continued on page 12*)

International Petroleum Co. clinic at Talara, Peru. Crow, Lewis and Wick, Architects

CLINIC IN PERU

Under construction in Talara, Peru, is a new clinic for the International Petroleum Co., Ltd., an affiliate of Imperial Oil, Ltd. Large enough to serve the entire 15,000 population of the town, the building was designed by Crow, Lewis and Wick, Architects, of New York.

One of the most interesting of the construction details is the use of tubular steel roof trusses made from salvaged oil well piping. All woodwork in the block-long brick, wood and concrete structure is by Nuroco Woodwork, and has been termite-protected by a new Monsanto impregnation process.

The building is planned for easy central control. Radiating from the high-ceilinged clerestory-lighted waiting room are three specialized wings: medical, surgical, and obstetrical. A smaller area for eye, nose and throat is provided behind the waiting room. Low-roofed streetside wings house records and staff.

NEWS FROM CANADA *By John Caulfield Smith*

A Billion This Year?

There seems little doubt that construction will set an all-time record value in 1948. Guestimates range anywhere from three quarters of a billion to a billion dollars. Contracts awarded for the first five months of this year total $350 million, according to the authoritative MacLean Building Reports, dwarfing the same period last year by 38 per cent. House building, up 139 per cent, leads the field, followed at a highly respectful distance by engineering construction, up 31 per cent, and commercial and institutional building, up 10 per cent.

The only category to show a decrease is industrial building, down 20 per cent. Part of the explanation may be found in a recent report tabled in the House of Commons, Ottawa. It discloses that "under existing conditions, when the rate of capital development is straining Canada's manpower and material resources, it is undesirable that funds required for the financing of capital expenditures should be obtained through an expansion of bank credit." To some extent this warning undoubtedly has put a brake on additions to our factory inventory.

Full-sized model subway station concourse built by the Toronto Transportation Commission for experimental purposes. Walls of street entrance are glass-faced block, those of concourse are terrazzo with floor to match. Fluorescent lighting is concealed in acoustic tile ceiling. Stainless steel trim. Construction of the subway system is approved in part

Operation Married Quarters

Hon. Brooke Claxton, Minister of National Defense, has announced a $20 million housing program for married members of Canada's Armed Forces. It calls for erection of nearly 2500 dwellings, chiefly in remote areas, during 1948. They are to have from four to six rooms, cost from $6500 to $8000, and be allocated on the basis of family need. Exactly the same standard of accommodation is to be provided for the Army private as for his superior officers, and rents will be established on the normal quarters allowance according to rank.

Canadian Commercial Corporation, a Dominion Government agency, will let the contracts and manage the projects. Some prefabrication will be employed.

Nail Speculator Fined

A North York lumber dealer has been fined $3000 and costs by a Toronto magistrate for selling nails at "an unreasonable and unjust price." He is be-

(*Continued on page 158*)

DOUBLE DUTY
INSULITE
(BILDRITE SHEATHING)

BUILDS

INSULATES

TWO services at one cost.

Remember that fact because it's exactly the kind of fact your clients will remember . . . and appreciate . . . and give you credit for.

Double-duty INSULITE (Bildrite) SHEATHING not only encloses a house but it provides insulation at the same time . . . for no more cost. That's double for your clients' money . . . and they like it. Specify double-duty Insulite.

Refer to Sweet's File, Architectural Section 10a/9

INSULATES AS IT . . .
BUILDS AS IT

double-duty
INSULITE
The GENUINE

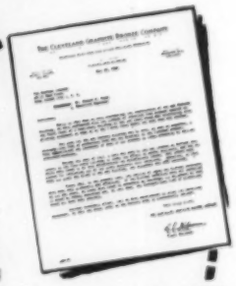
BUILDS
INSULATES

"Insulite" is a registered trade mark, U.S. Pat. Off.

INSULITE DIVISION MINNESOTA & ONTARIO PAPER COMPANY
MINNEAPOLIS 2, MINNESOTA

TO THE *ENGINEER* ...WITH AN INDUSTRIAL PLANT ON HIS DRAWING BOARD

HERE'S AN IDEA... For STRAIGHT-LINE PRODUCTION LAYOUT



Korfund Vibration Control for over 200 presses made possible Straight-Line production — and Cleveland Graphite Bronze Co. received Cleveland's Chamber of Commerce award as "The finest large industrial plant constructed in Cuyahoga County in 1941-42."

Early in 1940, when we were considering the construction of our new factory building, we were confronted with the problem of vibration from presses located on the first floor of a four-story building at the old plant which was interfering with grinding equipment as high up as the fourth floor, where the tool room was located.

Our plan for the new factory building was to have, as near as possible, a straight-line flow of production from the raw material to the finished product. This necessitated the placement of some of our presses in close proximity to various precision machines.

During the year of 1940, a test was made by placing presses on Korfund Isolators in the four-story building to study the effect on nearby equipment, and the results were found to be very satisfactory—so satisfactory indeed, that orders were placed for furnishing all of our press equipment with isolators. Therefore, in 1942, when our plant was moved to the new building, our equipment was 100% isolated.

Since 1942, to the present time, the results of using the Korfund Isolators have been very successful and effective. If the Korfund Isolators were not installed in our new plant, we would have found it necessary to rearrange our equipment so that it would be widely separated and, in that case, the straight-line flow of production would not have been possible.

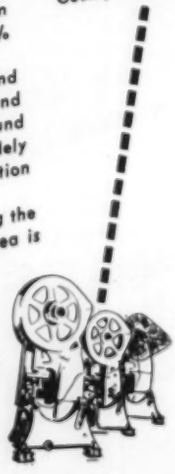
Another favorable effect that we have experienced in using the isolating equipment, is that the noise level in the factory area is considerably reduced.

Very truly yours,

THE CLEVELAND GRAPHITE BRONZE COMPANY

(Signed) L. E. Wilson, Plant Engineer

May 18, 1948



KORFUND VIBRATION CONDITIONING reduces building damage, machinery maintenance costs, work spoilage, and provides the more quiet atmosphere that increases employee efficiency.

And—in schools, hospitals, stores, multiple-housing units—wherever air conditioning or other machinery can transmit vibration and create a noise nuisance—Korfund mountings enable you to plan installations at the most practical location for efficient operation. Just send the coupon today for the New Korfund Specification Sheet.

KORFUND VIBRATION CONTROL

THE KORFUND COMPANY, INC.

48-65 Thirty-Second Place • Long Island City 1, N. Y.

Please send me, without obligation, the 1948 Korfund Specification Sheet, describing Korfund Vibration Control Equipment—rubber, cork, and steel spring mountings—with Selector Chart for applications.

Name_____

Company_____

Address_____ City_____ State_____

THE RECORD REPORTS

(*Continued from page 10*)

and specifications worked out largely by the A.I.A. will be offered the qualifying veterans free of charge by VA.

7. Authorized federal housing agencies to exercise war housing powers under the Lanham Act to provide temporary housing for veterans, service men and their families who are under eviction notices and other prescribed hardships. This law converted barracks and other war-built structures into temporary housing.

8. Permitted savings and loan associations to loan home owners up to $1500 each for property alterations, repair or improvement, such loans being insured under FHA Title I.

9. Made disaster loans available to flood-ravaged areas both for housing and for restoration of damaged public utilities.

10. Raised the ceiling for RFC purchases of GI and combination home mortgages meeting FHA standards of construction from $250 million to $840 million.

11. Offered war housing to colleges and universities, title free, that was war-built and now is being used by them. The learning institutions have until late in October to apply for this housing under Public Law 796.

Housing Costs Hit

Congressional attention was called to high housing costs in a last-minute report of the House Committee on Expenditures in Executive Departments. The Committee had investigated the Viers Mill Village veterans' housing project in suburban Montgomery County, Maryland. It urged a tightening up of the compliance and inspection program of the Federal Housing Administration and the Veterans Administration to protect veterans against inferior or substandard value in government-guaranteed projects.

"We feel that the testimony in this instance justifies our conclusion that a more effective system of progress inspection is justified by the government-guaranteed mortgage," said the Committee report. "We feel certain also that the Veterans Administration has ample power to protect veterans after the formal conveyance of the property. This protection should extend to requiring replacement or correction of inferior workmanship and faulty materials."

Defense Controls Get OK

Much to the surprise of everyone, buried in the military draft bill, which Congress put through just before it ad-

(*Continued on page 14*)

NOW—lower priced than ever before!

ALCOA ECONOMY CASTINGS FOR SPANDRELS

CALL TODAY
get price and design data

Alcoa Economy Castings can be produced promptly. For complete information on prices and design specifications, ask for the booklet, Alcoa Economy Castings. Call your nearby Alcoa Sales Office or write ALUMINUM COMPANY OF AMERICA, 1867 Gulf Building, Pittsburgh 19, Pennsylvania.

Now you can improve appearance and *reduce construction costs* by using high-quality Alcoa cast spandrels and wall panels. By co-ordinating design specifications and production facilities to permit maximum economy, Alcoa now can offer cast aluminum spandrels and wall panels at lower prices than ever before. Add to the advantage of low price, the economies of aluminum's light weight, corrosion resistance and easier handling and you'll see how Alcoa Economy Castings can help you solve the problems of construction time and costs.

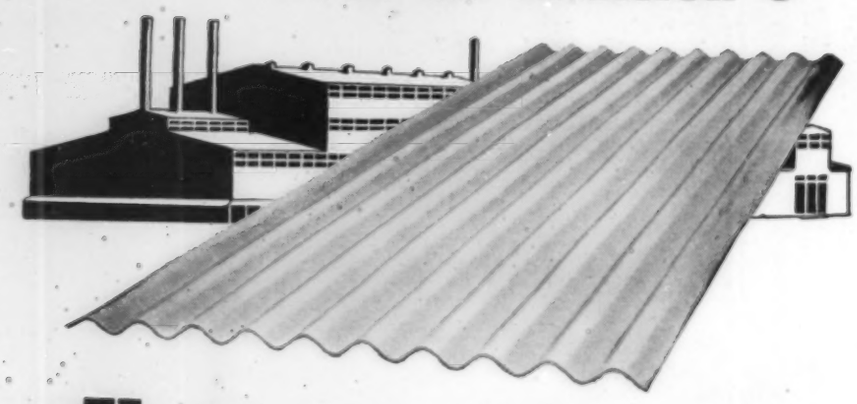
ALCOA FIRST IN ALUMINUM

ALCOA ALUMINUM 1888 1948 60 YEARS OF SERVICE

Planning a

Chemical Plant
Oil Refinery
Paper Mill?

...or an addition?



You can now get

ASBESTONE

Asbestos-Cement Corrugated Roofing & Siding

—the lifetime roofing and siding that's fireproof and corrosion-proof. Asbestone can't be damaged by weather, rats, or termites. No painting. No upkeep.

Here are a few of the many prominent users:

LONE STAR CEMENT CORP.
CALIFORNIA OIL CO.
CHAMPION PAPER and FIBRE CO.
ETHYL CORPORATION
FREEPORT SULPHUR CO.
NEW ORLEANS PUBLIC SERVICE
MOBILE PAPER MILL CO.
CROSBY CHEMICALS, INC.
STANDARD OIL OF N. J.
UNIVERSAL ATLAS CEMENT CO.

Why we can assure you early delivery

We are concentrating on production of this single industrial product. Stocks are now ample to make some immediate shipments. Free Engineering Service, available on request, shows how Asbestone can be adapted to your needs.

ASBESTONE CORPORATION

5300 TCHOUPITOULAS STREET NEW ORLEANS 15, LA.

Specialists in Asbestos-Cement Building Products for over 25 Years

THE RECORD REPORTS

(*Continued from page 12*)

journed, was authority for controls to carry out defense contracts. This was expected to come along in due time, but slowly. (See the June issue of ARCHITECTURAL RECORD.) Instead, the Armed Services got the power before they expected it or needed it or even, perhaps, wanted it, and in fuller measure. Many times they had told committees that at some point they might have to ask for power to command defense work that mere money might fail to buy. But they did not count on getting it so promptly and completely.

When Washington and the rest of the country woke up to the fact that the Armed Forces had a clear-cut priority, subject only to the issuance of regulations by the President, officials did not go into immediate huddles on how, when and where to use it. The realization came during the Republican convention, which was a week when no work whatever was done in official Washington except by those who in one way or another could chalk up watching a television or listening to a radio set as work.

Meanwhile there were scheduled meetings of the various industry groups to allocate steel voluntarily to this or that industry. With Army and Navy priorities looming, the people at these meetings fooled around, conjectured, and agreed to hand-outs announcing progress.

May Affect Building

However it was to work out — whether the Armed Services were to ignore utterly or use to the hilt their new powers — the bare fact of Army buying was expected to tighten supply sources for the building industries. Immediately, of course, the Services are not in the market for great quantities of basic materials. They are still at the stage of drawing up contracts and, even a further step removed, of planning such contracts. But there is a lot of evidence in the national capital that companies that look for Army or Navy business are themselves going ahead preparing for the business that is to come. So far this has not been reflected in the raw materials inventories reported belatedly each month by the Commerce Department.

As for use of the priorities, the Army may exercise its new powers merely to silently threaten, as though saying to its reluctant suppliers: "We take it for granted that you want this business, which you'll have to accept anyway." It could work out into a triple play — Defense, Commerce, Industry — in which the fact of power is used to induce volun-

(*Continued on page 16*)

"TO BE PREPARED FOR WAR IS ONE OF THE MOST EFFECTIVE MEANS OF PRESERVING PEACE . . ."

GEORGE WASHINGTON. 1790

The 4700 members of The Associated General Contractors of America have been asked to bring their construction "know-how" into the War Department's Affiliation Program – called by the Army "a vital phase of national defense." The A.G.C.'s place in the program is to help organize construction-trained reserve units in which each man is fitted to his military assignment by his daily work in the construction industry.

One hundred construction reserve units were voluntarily pledged by A. G. C. chapters and branches throughout the country to form "the backbone of the engineer program", as so designated by Lt. Gen. R. A. Wheeler, Chief of Engineers. Thus, already-trained troops will be ready for immediate mobilization in any national emergency.

Eighty-four of these reserve units have so far been sponsored by A. G. C. chapters since September 30, 1947, when the Affiliation Program was unanimously endorsed by the membership. With the cooperation of related construction groups – labor, architects, engineers, equipment dealers, municipal officials and others – the units are now being placed in operation for training activities. The program is 84 per cent complete.

Upon reviewing the recent progress report submitted to him, Secretary of the Army Kenneth C. Royall said that "the spirit and manner in which the Association has undertaken this effort to strengthen our national security offers a worthy example to other groups participating in the program." The preparedness program is additional patriotic service, as so clearly indicated in the fast and efficient $49,000,000,000 construction miracle of the industry in World War II.

The members of The Associated General Contractors are privileged to contribute their SKILL, INTEGRITY, and RESPONSIBILITY, constantly exercised in their day-by-day work, to the furtherance of our country's vital defense program. In peace and in war, the construction industry serves the nation.

Copies of A. G. C.'s detailed "Progress Report on Affiliated Construction Units to the Department of the Army" are available upon request.

THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA
SKILL INTEGRITY RESPONSIBILITY
REG. U.S. PAT. OFF.

America Progresses Through Construction . . . Construct by Contract

The ASSOCIATED GENERAL CONTRACTORS of AMERICA, Inc.

More than 100 Chapters and Branches throughout America

National Headquarters — Munsey Building — Washington 4, D. C.

SKILL, INTEGRITY, RESPONSIBILITY IN CONSTRUCTION OF BUILDINGS, HIGHWAYS, RAILROADS, AIRPORTS, PUBLIC WORKS

Freshness..

GUARDED BY

BAKER CONTROLLED COLD

In dairies and processing plants . . . on railroad cars and trucks . . . at storage warehouses and locker plants all over America, you'll find Baker *controlled* cold at work — faithfully guarding foods in all their original freshness on their long trip from farms to city tables.

For Baker has a proud record of achievement in refrigeration and air conditioning. Over 40 years of experience has given its engineers the knowledge to plan truly "zone-balanced" plant systems — with perfect co-ordination between all units.

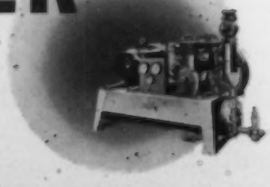
And from Baker's modern factories in Omaha, Neb., and South Windham, Me., come one of the world's finest lines of equipment — complete for both Freon and Ammonia — precision built for long life and low-cost operation.

Let Baker experts help you solve your air conditioning and refrigeration problems. For address of your nearest Baker Engineer or Distributor, write: Baker Ice Machine Co., Inc., South Windham, Me.

Photograph by Bradford Washburn

A-1

BAKER *Zone balanced · Engineered*



AIR CONDITIONING AND REFRIGERATION

FACTORIES AT OMAHA, NEB. AND SOUTH WINDHAM, ME. • • HEADQUARTERS: SOUTH WINDHAM, ME.

THE RECORD REPORTS

(*Continued from page 14*)

tary agreements giving the Army everything it needs. Commerce Department men have been preparing sales talks along that line. The great advantage of doing it that way is that it saves the Defense Establishment from meeting old wartime attacks of seeking a military dictatorship, of wanting to order industry around, etc. During the war, the Army preferred not to use direct requisitioning power. It preferred to have a civilian agency handling the industrial end. Moreover, this is part of a long Armed Service tradition.

Voluntary Program to End

But the voluntary allocation scheme ends next February. Ironically, Commerce Department, which first took hold of the plan in an attitude of resignation, asked Congress to renew but found Congress too busy. With the plan coming to an end early in the next term, there is no clear reason for supposing that either the defense chiefs or industry will be fully confident of it. In that case, the Army would be likely to just go ahead, ordering the regular way but letting everyone know it can do more. Also, the Army wants and has new statutory power to renegotiate various buying contracts. Requisition and allocating powers might be used to win acceptance of contracts subject to post-delivery bargaining.

The new powers became law at about the time the voluntary agreements unit of the Commerce Department announced a proposed allocation, with approval of the Steel Products Advisory Committee, of 58,000 tons of steel for producing all-steel prefabricated houses and 21,000 tons for flue-connected floor and wall furnaces. The steel would be made available during the rest of this year and the first two months of 1949.

Some Steel Allocated

The Steel Products Advisory Committee, which previously had disapproved the prefabricated housing program because of its heavy demand on steel, stated that, in view of advice from Congressional and administrative sources that the steel housing program is essential, it had agreed on the allocation, "provided that none of the tonnage is to be used for fixtures and appliances."

Architects' Cause Urged

Use of government rather than private architects in the erection of veterans' hospitals became an issue as Veterans Administration appropriations made their way through Congress in May and June. Members of the American Insti-

(*Continued on page 18*)

6 common conditions where *WOLMANIZED PRESSURE TREATED LUMBER protects against DECAY and TERMITES

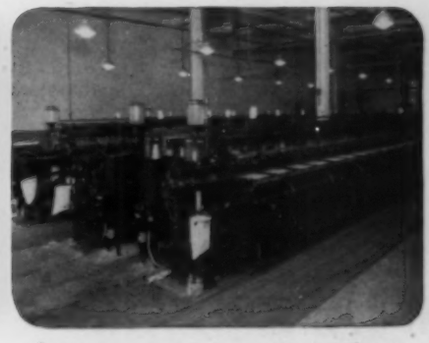
1. Ground moisture and rain held in joints etc., of outdoor structures.

2. Wood used in or near the ground open to attack by termites.

3. Wherever moisture is condensed because of concrete or masonry.

4. Where steam and vapor from industrial processes are prevalent.

5. Walls, floors, ceilings subject to condensation from refrigeration.



6. Wood exposed to moisture in artificially humidified buildings.

LASTS FOR DECADES

You give your clients extra value when you specify lumber whose resistance to wood-decay and termites gives it 3 to 5 times the life of ordinary wood.

Actual service records, available to you, demonstrate that "Wolmanized" pressure-treated lumber gives just such performance.

Owners quickly recognize your interest in better building when you point out the lasting protection so easily available with Wolmanized lumber.

This lumber is pressure-treated with salts that are toxic to decay fungi and termites. Wolmanized lumber is clean, odorless, paintable and non-corrosive to metals.

Best of all, the extra cost of Wolmanized lumber is always less than the cost of labor alone in replacing failing, untreated wood.

For further information and copies of actual service records, write today to American Lumber & Treating Company.

Know more about this money-saving treated lumber

Complete information on Wolmanized lumber, including suggested specifications, is available in this new booklet.

Write for your copy today.

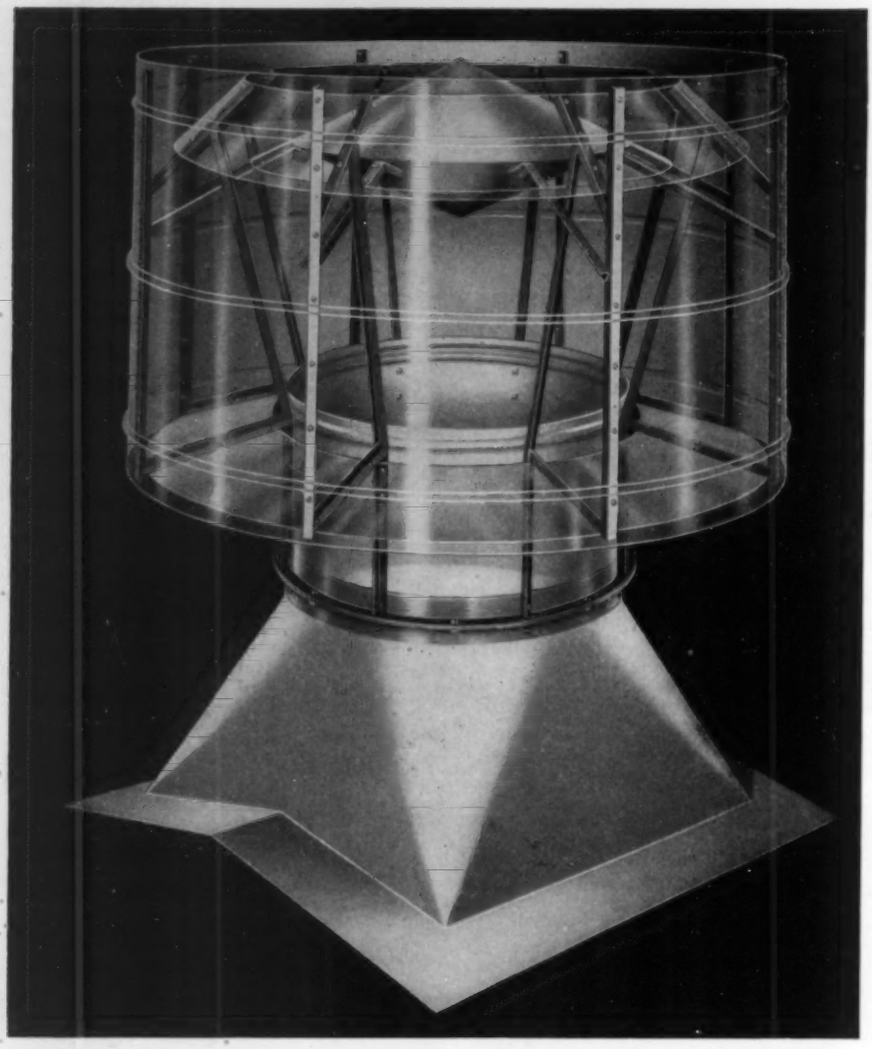
*Registered Trade Mark

WOLMANIZED
Reg. U.S. Pat. Off.

AMERICAN LUMBER & TREATING COMPANY

General Offices: 332 South Michigan Ave., Chicago 4, Illinois

Boston 9	New York 17	Washington 5	Jacksonville 2, Fla.	Portland 5, Ore.	Los Angeles 15	San Francisco 5
141 Milk St.	420 Lexington Ave.	831 Southern Bldg.	719 Graham Bldg.	1220 S. W. Morrison St.	112 West 9th St.	604 Madison St.



WE ELIMINATED THE LIMITATIONS IN DESIGNING BURT'S FREE-FLOW

In designing the original Burt Free-Flow Gravity Ventilator 13 years ago, Burt engineers reduced to a minimum the factors that limit the capacity of stationary ventilators. Constant research and improvement since have made this unit outstanding in its field today . . . Among Free-Flow advantages are upward vertical discharge for full velocity and to protect the roof from condensation—elimination of internal louvers—airflow direction cone to prevent turbulence in the head—and no moving parts to ever get out of order. For ease of erection, efficiency, long life and low maintenance expense, Burt Free-Flow Gravity Ventilators are first choice for many installations.

SEE SWEET'S OR WRITE FOR CATALOG AND DATA SHEETS

The BURT MFG. Co.

48 E. South St. Akron 11, Ohio, U.S.A.

VENTILATORS • LOUVERS • OIL FILTERS • SHEET METAL SPECIALTIES

THE RECORD REPORTS

(*Continued from page 16*)

tute of Architects appeared before the House Appropriations Committee, stressing VA plans to expand its architectural staff and design the remainder — some 14 — of the 90 hospitals within its own staff.

The A.I.A. protested the intention "to usurp the prerogatives of the professional man and to intrude into the field of private enterprise." It advocated "without reservation the engagement of professional service, drawn from private practice, for the rendering of such professional service on all federal work."

Veterans Administration Gray, questioned by the Committee as to whether he used his architectural staff for new buildings, replied in the affirmative. "We design one building," he said, "and get plans and specifications for that building, and build, perhaps, five hospitals and save the cost of plans and specifications for each individual building."

In the course of the discussion, the status of the new hospital program came to light. Construction contracts have been awarded for 26 hospitals, preliminary plans have been made or are in preparation for 15, preliminary plans have been completed on 47, and two are under advertisement for construction contracts. (The testimony was given late in May.)

The following statement was presented of projects to be advertised this summer:

In June: Denver, Colo.; Brecksville, Ohio; Norman, Okla.; and Seattle, Wash.

In July: San Diego, Calif.; Greenville, S. C.; Detroit, Mich.; Miles City, Mont.; and Bonham, Texas.

In August: Ann Arbor, Mich.; Harrisburg, Pa.; Tupelo, Miss.; Louisville, Ky.; El Paso, Texas; and Houston, Texas.

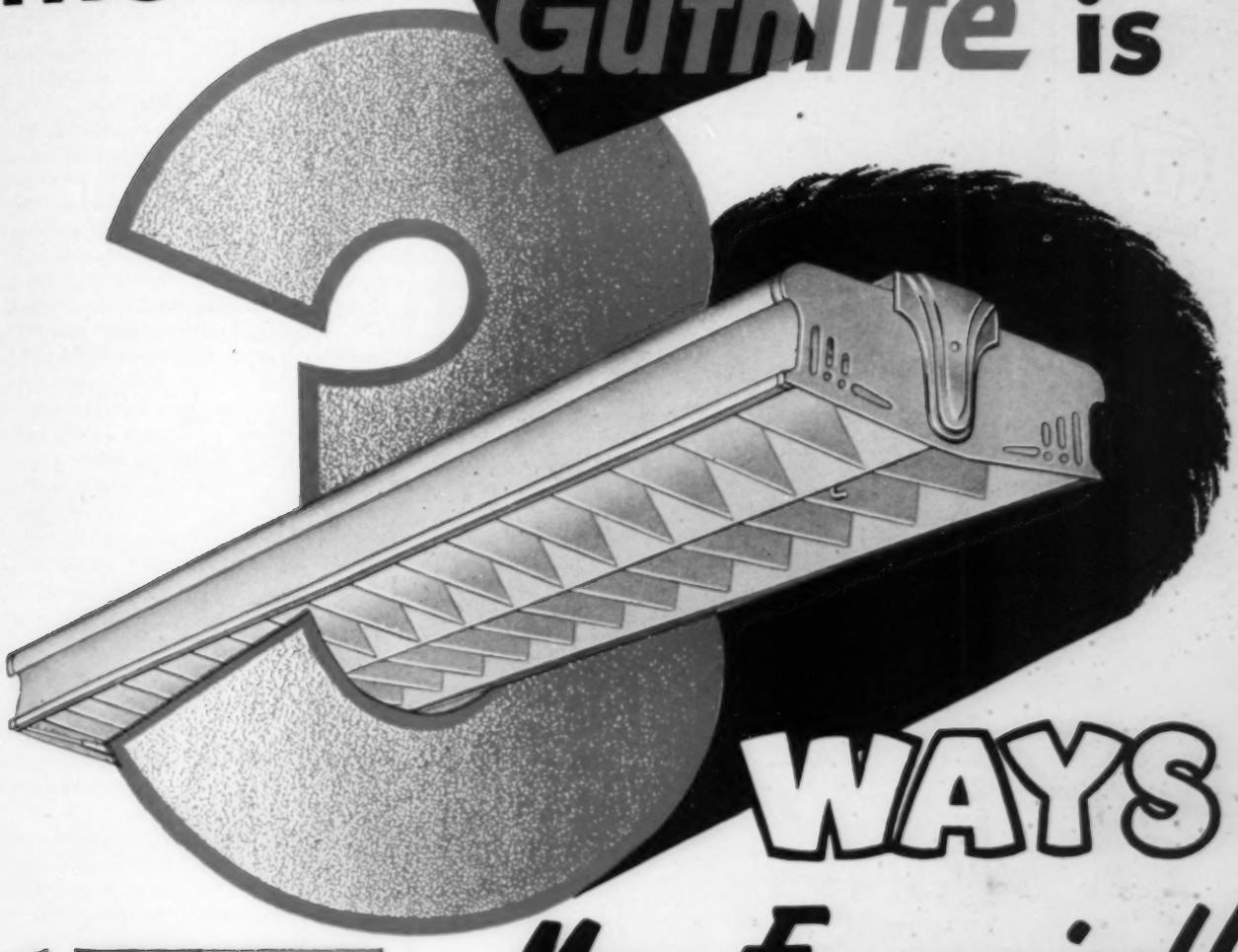
Hospital Program Pushed

The U. S. Public Health Service proudly points to impressive totals beginning to roll up under the Hill-Burton Act covering its hospital erection program. In the first six months of 1948, which coincide with the first six months of the program in its active stages, the total of projects in 42 states was lifted to 347. Construction in progress as the second half of 1948 began will add 11,846 general beds to the nation's facilities. This much of the five-year undertaking is costing $160,734,258. Federal sources pay one-third of the hospital construction cost, states or local sponsors two-thirds.

Public Health Service architects have

(*Continued on page 20*)

the new Guthlite* is



3 WAYS More Economical!

1

Economical to Install

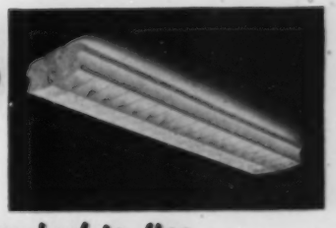
The ballast-free channels are hung first—either on the ceiling or suspended—singly or in continuous rows. Then follows simple, straight-through, unobstructed wiring. Finally, the complete reflector unit, which includes louvres, ballast, and all accessories, is put up in one simple, hook-on operation from the floor. No need to carry heavy loads up shaky ladders. This simplified installation saves time, effort, and cost.

2

Economical to Maintain

A revolutionary new maintenance principle has been introduced in the GUTHLITE! No more ladders! No more fuss, muss, or bustle! The entire maintenance operation—lamp replacements, starter changes, cleaning—*everything*—is easily, speedily handled—right from the floor—thanks to the patented Jacknife Hinge! The handy maintenance rod makes possible these tremendous savings in time, labor, and inconvenience.

3



Economical to Use

A GUTHLITE installation means triple economy in use. First, because there are no horizontal light-reflecting surfaces to gather dust, light output retains maximum efficiency. Second, because GUTHLITE is so easy to maintain, the lighting efficiency is held at consistently high levels. And third, because of their easy seeing, direct-indirect illumination, GUTHLITE adds to the productive work of the people using the light! A real three-way economy in use.

THE Edwin F. Guth COMPANY
ST. LOUIS 3
LEADERS IN LIGHTING SINCE 1902

*Trade Mark. U. S. & Canadian Patents Applied for

Write for full details about GUTHLITE. Ask for Bulletin 4845D

When bathroom floor space is at a premium...

The FIAT BUILT-IN *Cadet* Model 19-B solves the problem easily because when completely recessed it takes up no bathroom floor space at all.

Not only is the Built-In Cadet a champion shower for remodeling where bathrooms are created out of the small space afforded by closets and odd corners, but in new construction it presents stimulating possibilities in bathroom layouts and design particularly interesting to the architect and builder.

The cabinet can be completely recessed or partly set out to line up with lavatory or other fixtures as illustrated. The exclusive Fiat escutcheon type door frame conceals the joint between wall and cabinet stiles providing a clean cut appearance that gives a new look to bathrooms.

In addition, the Built-In Cadet incorporates some of the newest improvements in shower cabinet construction such as the elimination of all exposed screw heads and loose joining seams that collect dirt. The smooth, clean, interior is a distinct advance in shower cabinet construction that owner users will appreciate.

The Zephyr glass door is recommended for Built-In Cadet installations because it adds so much to the appearance and utility of the shower at so little added cost. Owners often refer to the Built-In Cadet as the "glass shower" because the glass door is the only part exposed in the bathroom.

Size 36" x 36" x 80", receptor precast terrazzo with cast-in drain. Walls, bonderized, galvanized steel, finished with white baked-on synthetic enamel. Zephyr or Dolphin glass door, or shower curtain can be installed on the Built-In Cadet.

Fiat *Metal Manufacturing Company*

Chicago 13, Illinois

Long Island City 1, New York Los Angeles 33, California

IN CANADA—Fiat showers are made by Porcelain and Metal Products, Ltd., Orillia, Ontario

THE RECORD REPORTS

(*Continued from page 18*)

found it necessary to prepare plans and cost estimates for smaller hospitals — down to 25-bed capacity (see ARCHITECTURAL RECORD, June, 1948, p. 92). When the program first was outlined, it was felt nothing smaller than 50-bed buildings would be constructed. This opinion was based on a doubt many of the communities needing hospitals could raise their own funds, the two-thirds share of the building cost. Present trends now indicate, however, that many remote areas are raising needed money for participating in the federal program. Particularly is this true in the southern states where the need has been felt to be greatest. U. S. Public Health is convinced many of the very small hospitals will be built.

An early survey has disclosed that 1,361,895 hospital beds are needed in 44 states which have approved plans.

Synthetic Oil Plans Progress

Another sizeable construction program, in much earlier stages of development, is being inaugurated by the Army Corps of Engineers for the Department of the Interior. This involves the synthetic oil producing plans.

The world demand for petroleum and its products prophesies highly specialized fields of activity for American architects and the rush of science toward perfection of oil producing processes spells new activity for the drawing boards. Washington is feeling its way forward in this relatively new enterprise.

A few weeks ago Army Engineers said they had contracted with Ford, Bacon and Davis, New York consulting engineers, for a survey of information. This step looks toward the future construction of synthetic fuel production centers, nationwide.

Under the present contract the Army Corps is spending $110,000 to find out facts in parts of three states — western Kentucky, northwestern Colorado, and southeastern Texas. It wants to know more about the availability of raw materials, water supply, power, transportation, labor, housing and markets in those regions. Later, the investigations will be extended to other parts of the country. The information now sought is needed as groundwork for the planning of synthetic oil manufacturing plants. The Bureau of Mines will select manufacturing processes and say what plant requirements will be.

The birth of an industry — that is what Interior Secretary Julius A. Krug calls it. Dedicating the synthetic fuels

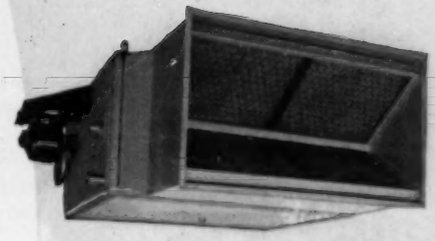
(*Continued on page 22*)

BUSH HEAT TRANSFER PRODUCTS

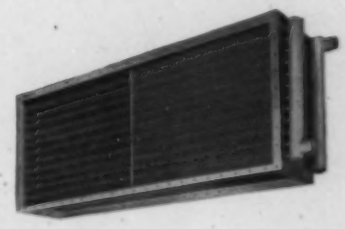
The "STOCK UNIT" answer to every need!

BUSH WATER, STEAM AND DX COILS are supplied in standardized and matched sizes and singly or in combination can be arranged to fit practically any installation. Top materials. Conservatively rated.

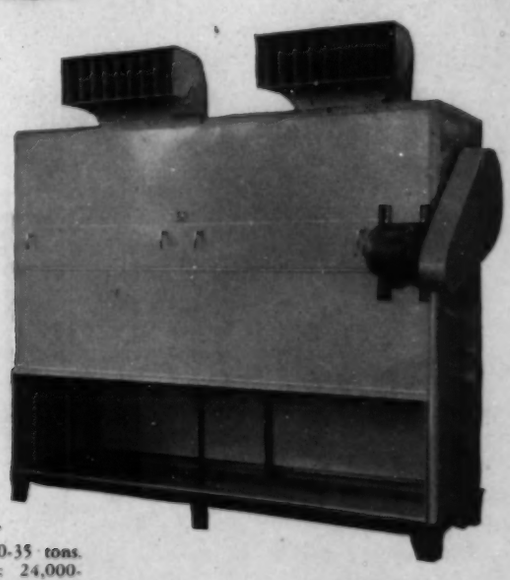
BUSH HEAVY DUTY COOLERS, floor and ceiling type, are designed for easy installation and service . . . fill practically every refrigeration or air conditioning need. Expert engineering and workmanship.



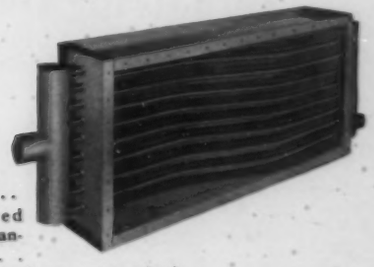
CEILING TYPE UNIT —
Air Conditioning: 5-25 tons. Product Cooling: 24,000-48,000 BTU/HR at 10° TD above 32°. The last word in efficient design and operation.



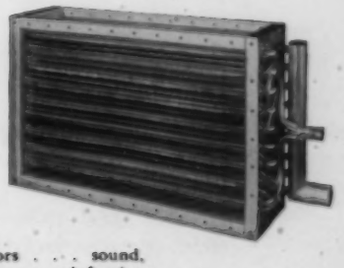
WATER COILS . . .
Aluminum fins on tinned copper tubes . . . mechanically expanded fin-to-tube bond . . . turbulence-creating finger spacers.



FLOOR TYPE UNIT —
Air conditioning: 10-35 tons. Product Cooling: 24,000-96,000 BTU/HR at 10° TD above 32°. 24,000-90,000 BTU/HR at 10° TD below 32°. Built in two sections for quick, easy installation.



STEAM COILS . . .
O-GEE curved tubes for expansion stresses . . . large tubular headers . . . standard BUSH materials and workmanship.



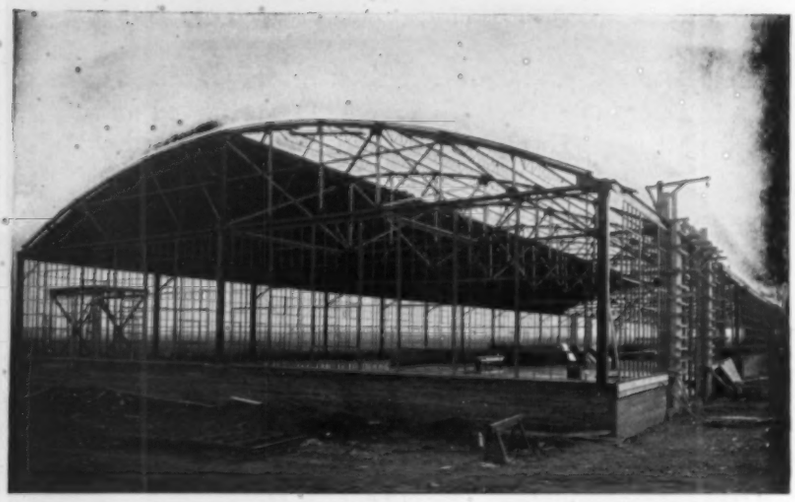
DX COILS . . .
Low pressure drop circuiting . . . pressure-type refrigerant distributors . . . sound, conservative ratings . . . reinforcing tiebars for high structural strength.

Write TODAY for the new BUSH Catalogs illustrating and describing Water, Steam and DX Coils and Heavy Duty Coolers . . . each containing complete engineering data to help you plan and specify. Address DEPT. C5.

BUSH MANUFACTURING CO. • WEST HARTFORD 10, CONN.

Bush
HEAT TRANSFER PRODUCTS

Riveted *for Safety*



Bowstring Trusses *by*

MESKER STEEL Evansville IND.

RIVETING in truss fabrication means positive security and above all simplicity in the finer phases of steel construction.

The Bowstring Truss, a truly original Mesker development, provides greater strength and flexibility to meet every requirement of industrial or commercial construction, wherever clear floor space is required.

THE Mesker Bowstring Truss design eliminates columns. Greater floor space and the resulting finer appearances are but another feature of Mesker design. Mesker in truss fabrication, means safety, means better and standardized construction.

Mesker Steel prefabricated products are superior in every field — a true fact you expect from one of the oldest fabricators in the country.

WRITE TODAY FOR CATALOG AND FREE DESIGN INFORMATION

GEO. L. MESKER STEEL CORP.
EVANSVILLE 8, INDIANA

THE RECORD REPORTS

(*Continued from page 20*)

laboratory and pilot plants at Bruceton, Pa., he let it be known that enough data now are available to permit an immediate start on design efforts for the construction of initial commercial plants.

Earlier this year Secretary Krug recommended to Congress the appropriation of $400 million for the construction of several pilot plants of commercial proportions. Capacity of each would be 30,000 barrels of oil production each day, or less. From such plants, said Mr. Krug, could be developed "the great new industry that I envision will make the U. S. self-sufficient in liquid fuels production." Congress may get around to these appropriations next year.

The government experts are agreed that these plants should be designed, built and operated by private enterprise. Evidently the Army Engineers are satisfied, too, that private industry should survey potential location sites and determine local conditions.

Sawmills Behind Iron Curtain

A foreign development was the announcement by John J. McCloy, president of the World Bank, that loans are being contemplated to small countries behind the Iron Curtain for purchase of sawmill equipment to stimulate lumber production. The tentative plan to loan $17 million to Poland, Yugoslavia and Czechoslovakia for sawmill operation and lumber output could mean more housing lumber in this country. The plan, as suggested once before, would increase forest products activity in those three countries, enabling them to ship to the Marshall Plan nations and largely satisfy demands there. This would relieve demands on American lumber producers. Mr. McCloy said the plan was being given further consideration at Geneva.

FHA Makes Report

FHA, concluding 14 years of service, advises that it has insured over $12.5 billion of mortgage and property improvement loans, that the largest volume came in the last year (over $2.7 billion), and that last year its income exceeded $30 million after payment of all operating expenses.

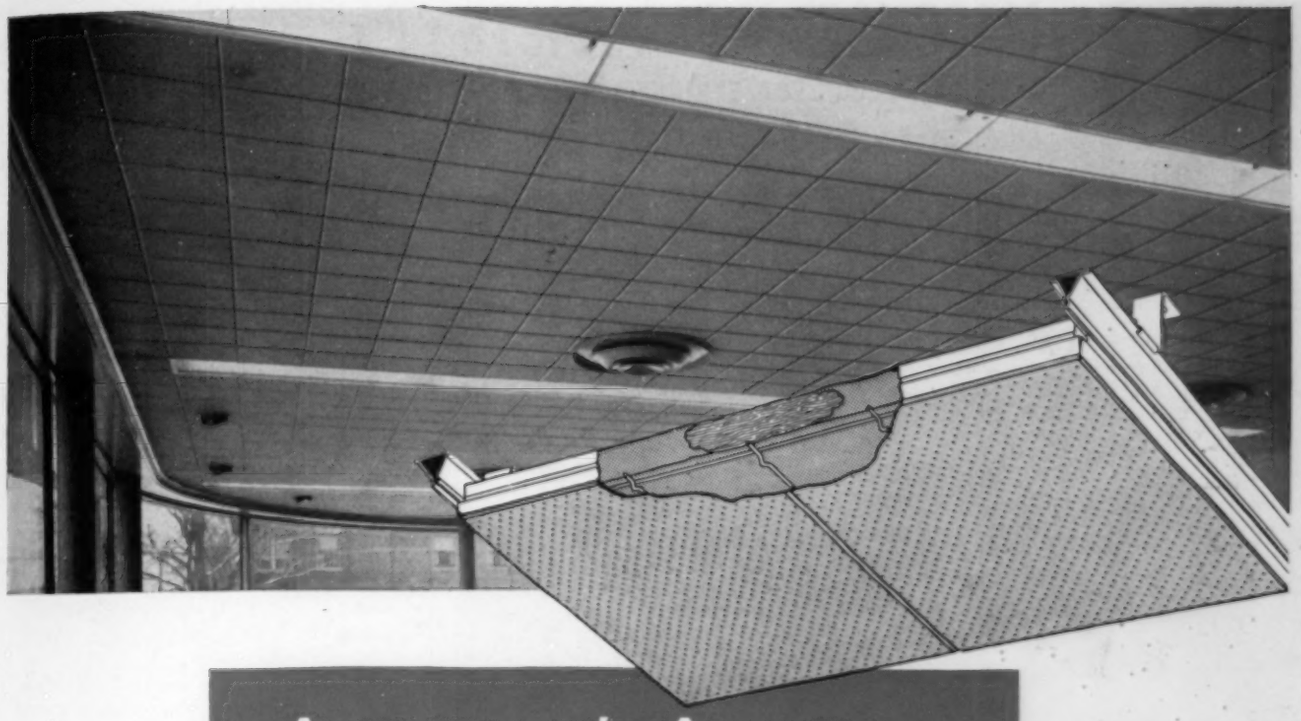
❖ ❖ ❖

ON THE CALENDAR

Aug. 2–27: 2nd Annual Silversmithing Workshop Conference for Teachers, Rhode Island School of Design, Providence, R. I.

Aug. 4–8: 2nd Annual Pacific North-

(*Continued on page 24*)



Armstrong's Arrestone stops up to 85% of noise

Armstrong's Arrestone offers extra efficiency. Up to 85% of all noise striking an Arrestone ceiling is absorbed.

The attractive surface of Arrestone is a sturdy metal pan of 26-gauge steel. It is 12" x 24" in size and is perforated with 1105 holes per square foot. Inside the pan is a mineral wool sound-absorbing pad, wrapped in flameproof paper. A wire grid separates pad and pan, so the entire surface of the pad can absorb sound. This incombustible unit makes an attractive and unusually durable ceiling. Finished with two coats of baked-on enamel, it provides maximum light reflection without glare.

Armstrong's Arrestone is easy and economical to maintain. It can be washed with mild soap and water when necessary. Even repainting won't affect its unusually high acoustical efficiency.

Arrestone units have beveled edges. A bevel also divides the pan to give the appearance of two 12" square tiles. Units are firmly mounted on metal runners but can be removed and relocated. This flexibility permits easy installation of recessed lighting. Armstrong's Arrestone is installed by leading acoustical contractors throughout the country. For full information write Armstrong Cork Company, Acoustical Dept., 2408 Stevens Street, Lancaster, Pa.

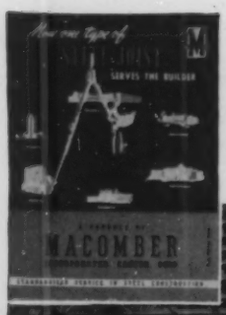
Arrestone Sound-Absorption Coefficients at Various Frequencies

Thickness	Size	Coefficients at Cycles Tested						Noise Reduction Coefficient
		128	256	512	1024	2048	4096	
Including pad, metal facing, and furring: 2½"	12" x 24"	.25	.56	.99	.99	.77	.60	.85

*TRAVERTONE IS A TRADE-MARK FOR WHICH REGISTRATION IS PENDING.

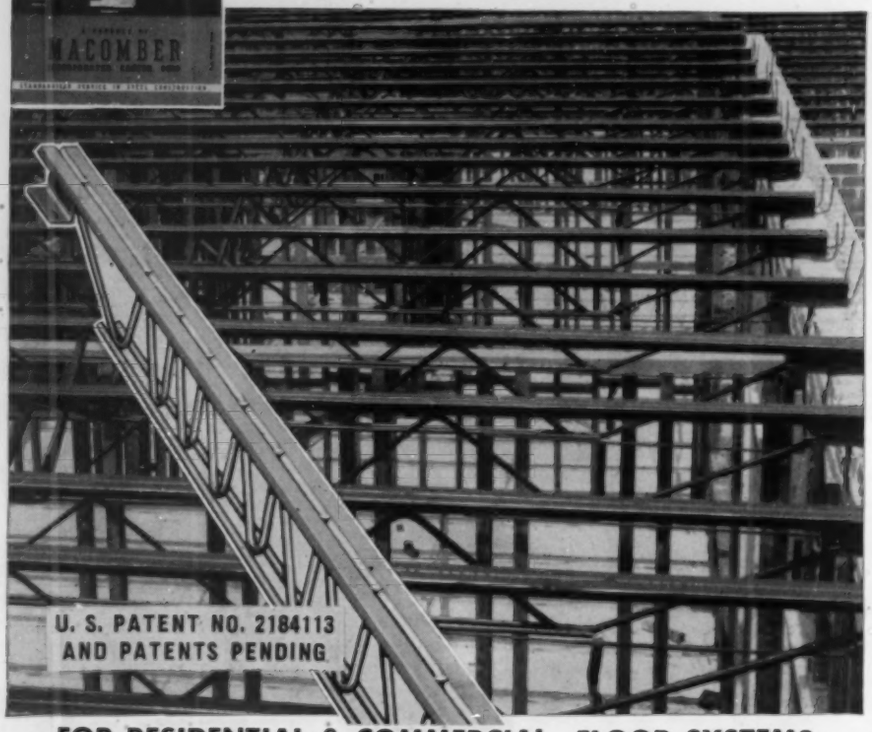
ARMSTRONG'S ACOUSTICAL MATERIALS

CUSHIONTONE® — TRAVERTONE* — ARRESTONE® — CORKOUSTIC®



MACOMBER V BAR JOISTS

A BETTER FLOOR FOR ENGINEER TO DESIGN, BUILDER TO ERECT, AND OWNER TO HAVE



FOR RESIDENTIAL & COMMERCIAL FLOOR SYSTEMS

This ONE steel joist of universal application is welcomed by the designer. He has one type of joist to think about, find and design into any joist job that comes along. Then comes the builder who merely lays, spaces and bridges Macomber V Joists. How does he like them? No special forms, labor or equipment. No structural delays to floors above. He gets in, gets out, gets paid. And the owner—with occupancy and income moved up! A floor assembled, not tediously built on the job, piece by piece at his expense. Yes, he likes V Bar Joists. The owner likes anything that builds better, quicker and for less. Add up all these exclusive MACOMBER advantages and you can only get one answer. Do you have the V Joist Catalog?

V-BAR JOISTS AND PURLINS • V-STUDS • TRUSSES • LONGSPANS • DECKING

MACOMBER
INCORPORATED
CANTON, OHIO

STANDARDIZED STEEL BUILDING PRODUCTS

THE RECORD REPORTS

(*Continued from page 22*)

west Arts and Crafts Fair, Bellevue, Wash.

Sept. 24–Oct. 2: Nation-wide Fall Home Fashions Festival, sponsored by National Retail Furniture Assn.

Sept. 27–Oct. 1: 3rd National Plastics Exposition, Grand Central Palace, New York City.

Oct. 1–29: "Tomorrow's World — Work, Play and Live," exhibition sponsored by the New York Chapter, A.I.A., New York Museum of Science and Industry, R.C.A. Bldg., Rockefeller Center, New York City.

Oct. 2–10: Construction Industries Exposition, Sam Houston Coliseum, Houston, Texas.

Oct. 13–15: Fall Meeting, American Society of Civil Engineers, Statler Hotel, Boston, Mass.

Oct. 13–16: 15th Annual Meeting, National Assn. of Housing Officials, and 3rd Annual Exhibit of Building and Maintenance Products, Olympic Hotel, Seattle, Wash.

Macy's-Flatbush, the Brooklyn branch of Macy's, New York, now being built

BUILDING NOTES

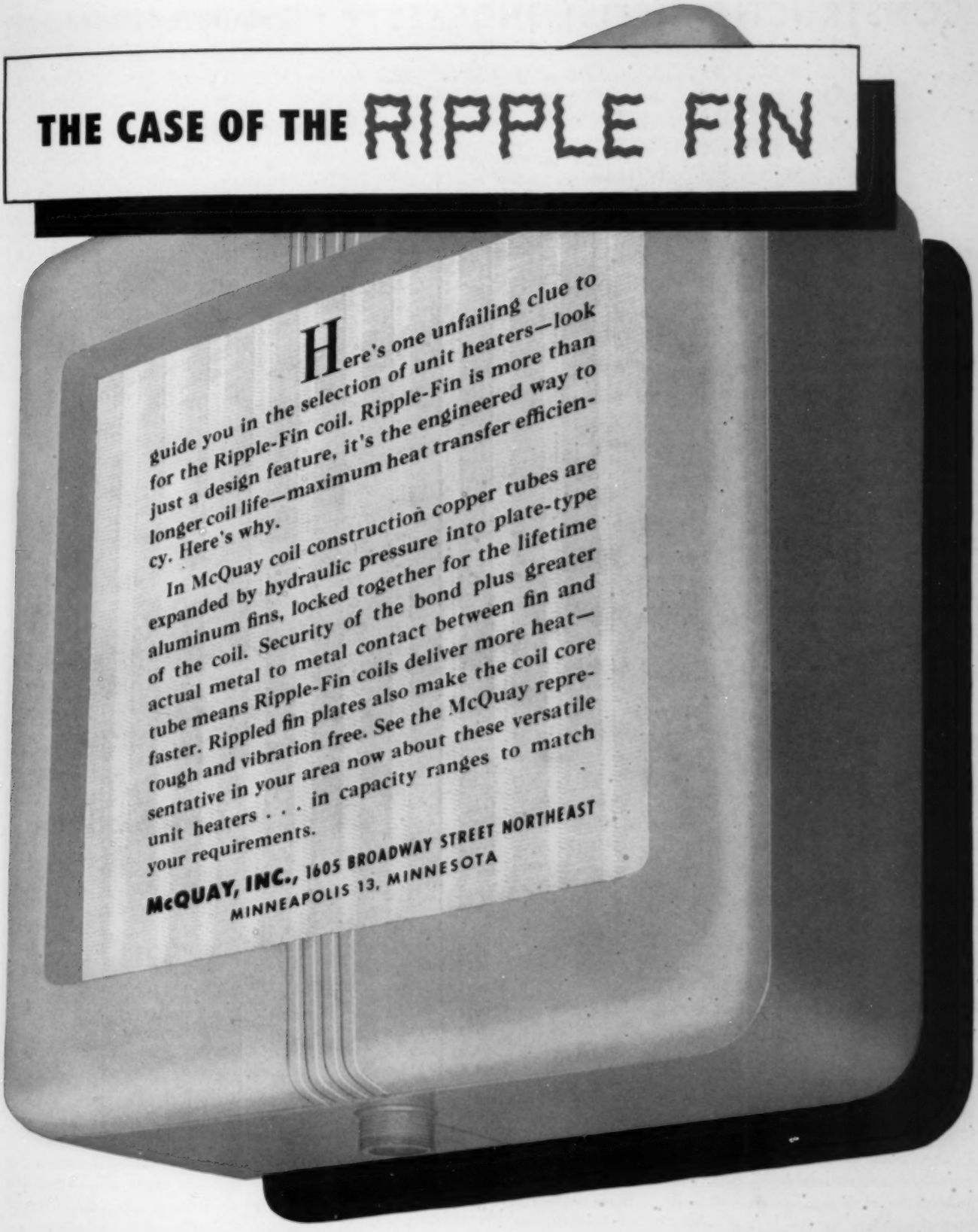
Suburban Store

Macy's-Flatbush, latest addition to the group of branch stores operated by Macy's, New York, is now well under construction. Designed by Voorhees, Walker, Foley and Smith, Architects, the new store will be an L-shaped structure of concrete and steel, three stories high, air conditioned throughout, and equipped with a device for electronically removing dust from the air. Lighting will be fluorescent. The plans closely follow those for Macy's earlier suburban stores in Parkchester and Jamaica as well as that now building in White Plains.

The interior color scheme will emphasize soft pastel tones, and merchandise will be displayed on rounded, "free-flow" fixtures. A special balcony will house reserve stocks to permit quick delivery to the selling floors.

(*News continued on page 162*)

THE CASE OF THE RIPPLE FIN



Here's one unfailing clue to guide you in the selection of unit heaters—look for the Ripple-Fin coil. Ripple-Fin is more than just a design feature, it's the engineered way to longer coil life—maximum heat transfer efficiency. Here's why.

In McQuay coil construction copper tubes are expanded by hydraulic pressure into plate-type aluminum fins, locked together for the lifetime of the coil. Security of the bond plus greater actual metal to metal contact between fin and tube means Ripple-Fin coils deliver more heat—faster. Rippled fin plates also make the coil core tough and vibration free. See the McQuay representative in your area now about these versatile unit heaters . . . in capacity ranges to match your requirements.

McQUAY, INC., 1605 BROADWAY STREET NORTHEAST
MINNEAPOLIS 13, MINNESOTA

McQuay INC.

HEATING . . . AIR CONDITIONING . . REFRIGERATION

CONSTRUCTION COST INDEXES — Labor and Materials

United States average 1926—1929=100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corporation, from data compiled by E. H. Boeckh & Associates, Inc.

NEW YORK

Period	Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1920	136.1	136.9	123.3	123.6	122.6
1925	121.5	122.8	111.4	113.3	110.3
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1940	126.3	125.1	132.2	135.1	131.4
1941	134.5	135.1	135.1	137.2	134.5
1942	139.1	140.7	137.9	139.3	137.1
1943	142.5	144.5	140.2	141.7	139.0
1944	153.1	154.3	149.6	152.6	149.6
1945	160.5	161.7	156.3	158.0	155.4
1946	181.8	182.4	177.2	179.0	174.8
Feb. 1948	239.2	243.2	225.2	224.8	220.1
Mar. 1948	244.8	246.4	233.9	237.0	229.9
Apr. 1948	248.6	250.7	235.9	238.5	232.1
May 1948	249.3	251.6	237.1	239.3	234.5
	% increase over 1939				
May 1948	**101.9**	**105.6**	**81.4**	**79.4**	**80.2**

ATLANTA

Period	Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1920	122.8	122.9	108.6	109.8	105.7
1925	86.4	85.0	88.6	92.5	83.4
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1940	91.0	89.0	96.9	98.5	97.5
1941	97.5	96.1	99.9	101.4	100.8
1942	102.8	102.5	104.4	104.9	105.1
1943	109.2	109.8	108.5	108.1	108.7
1944	123.2	124.5	117.3	117.2	118.2
1945	132.1	133.9	123.2	122.8	123.3
1946	148.1	149.2	136.8	136.4	135.1
Feb. 1948	194.4	198.5	172.1	172.7	173.8
Mar. 1948	194.6	198.7	172.4	172.9	174.0
Apr. 1948	196.2	199.7	173.6	175.3	175.3
May 1948	196.2	199.7	173.6	175.3	175.3
	% increase over 1939				
May 1948	**127.3**	**140.3**	**82.5**	**80.0**	**85.1**

ST. LOUIS

Period	Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1920	118.1	121.1	112.1	110.7	113.1
1925	118.6	118.4	116.3	118.1	114.4
1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1940	112.6	110.1	119.3	120.3	119.4
1941	118.8	118.0	121.2	121.7	122.2
1942	124.5	123.3	126.9	128.6	126.9
1943	128.2	126.4	131.2	133.3	130.3
1944	138.4	138.4	135.7	136.7	136.6
1945	152.8	152.3	146.2	148.5	145.6
1946	167.1	167.4	159.1	161.1	158.1
Feb. 1948	221.4	224.8	199.4	202.3	200.4
Mar. 1948	223.6	227.5	200.2	202.9	201.3
Apr. 1948	223.8	227.5	200.6	203.0	201.5
May 1948	223.8	227.5	200.6	203.0	201.5
	% increase over 1939				
May 1948	**103.1**	**112.6**	**69.0**	**69.5**	**69.3**

SAN FRANCISCO

Period	Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1920	108.8	107.5	115.2	115.1	122.1
1925	91.0	86.5	99.5	102.1	98.0
1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1940	106.4	101.2	116.3	120.1	115.5
1941	116.3	112.9	120.5	123.4	124.3
1942	123.6	120.1	127.5	129.3	130.8
1943	131.3	127.7	133.2	136.6	136.3
1944	139.4	137.1	139.4	142.0	142.4
1945	146.2	144.3	144.5	146.8	147.9
1946	159.7	157.5	157.9	159.3	160.0
Feb. 1948	213.8	211.5	201.6	208.9	203.9
Mar. 1948	214.0	211.7	201.9	209.1	204.1
Apr. 1948	214.9	212.7	202.7	209.5	204.4
May 1948	214.9	212.7	202.8	209.6	204.6
	% increase over 1939				
May 1948	**103.5**	**114.2**	**72.7**	**71.9**	**75.6**

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

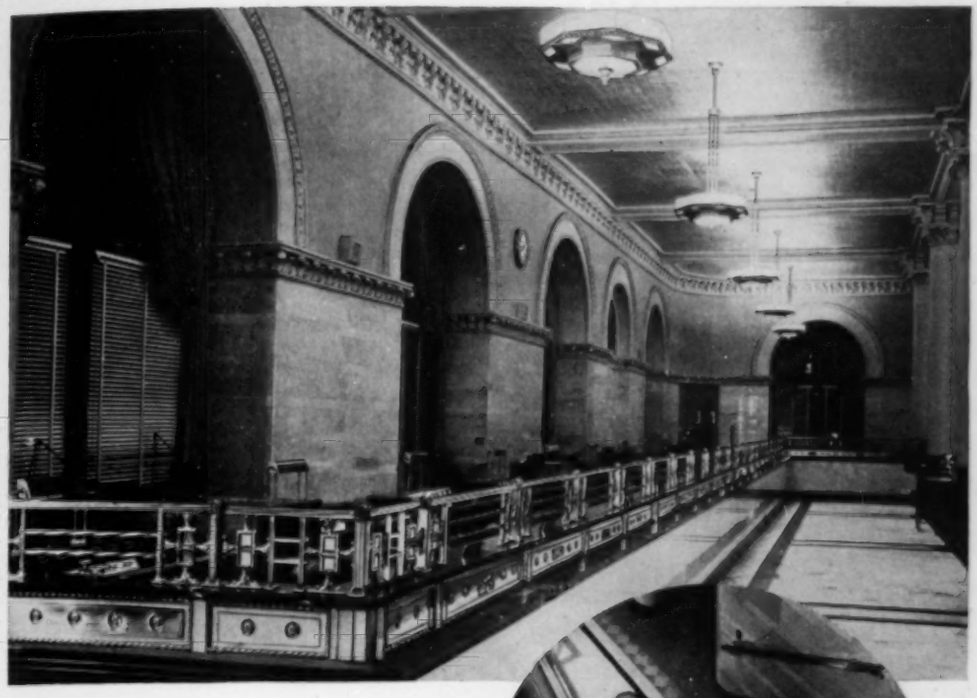
Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

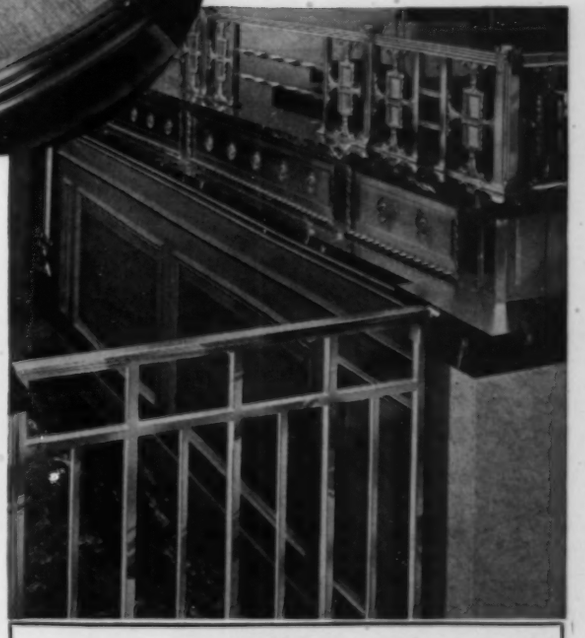
These index numbers will appear whenever changes are significant.



On the main banking floor, above, the richness of the bronze and marble grille surmounting the long tellers' desk is enhanced by semi-indirect lighting reflected from ceiling of gold leaf.

Simple, massive handrails of extruded bronze add a note of elegance to the stairway from the building lobby to the banking floor.

Closeup of grille forming the tellers' windows in main banking room. The gate is also of bronze.



Bronze

Provides the New Look... preserves the old dignity

RENOVATION of the Erie County Savings Bank in Buffalo, N. Y., presents an excellent example of the effectiveness of Anaconda Architectural Bronze in modernizing interiors without violating traditional atmosphere or time-honored prestige.

Architects for this project were Duane Lyman and Associates, Buffalo, N. Y. The general contractor was George W. Walker & Sons, Inc., of Buffalo. Both interior and exterior bronze work was executed by Superb Bronze & Iron Co. Inc., Brooklyn, N. Y.

Here, as in so many other banking institutions, public buildings, department stores and smart shops, both architect and fabricator confirm important advantages of Anaconda Architectural Bronze and Nickel Silver . . . ready workability, and uniformity in dimension, composition and finish. 4819

ANACONDA

Anaconda

ARCHITECTURAL BRONZE

THE AMERICAN BRASS COMPANY

General Offices: Waterbury 88, Connecticut

Subsidiary of Anaconda Copper Mining Company

In Canada: ANACONDA AMERICAN BRASS LTD., *New Toronto, Ont.*

REQUIRED READING

A MASTER EXPLAINS

Search For Form: A Fundamental Approach To Art. By Eliel Saarinen. Reinhold Publishing Company (330 W. 42nd St., New York, N. Y.), 1948. 6 by 9½ in. xxi + 354 pp. illus. $4.50.

When an architect of Eliel Saarinen's caliber and renown puts into words his innermost thoughts on the fundamentals of his art there can be no doubt as to the reception those words will receive. And when he does it in a book length analysis, tantalizingly titled SEARCH FOR FORM, the publication of that book is an event of major importance.

From the outset, this is an inspiring volume. Mr. Saarinen begins with an introductory account of his early childhood and life in his native country of Finland, and tells of the circumstances that placed him in the hands of architecture and art. In almost logic-lesson style, the Preamble discusses some of the basic fundamentals of form and leads the reader into the first of three brief "Analysis" chapters. "Introductory Analysis," in the words of Mr. Saarinen, "deals with form in general as to its origin, meaning, nature, import, and scope."

"Retrospective Analysis" is concerned with the post mediaeval or Renaissance problems, the general mental transition that came about at that time, and the influence it had on form transition in the same period.

"Prospective Analysis" brings the reader up to the present, discusses form development as related to the Machine Age, or The Machine Age and its Consequences, The World Catastrophe and its Consequences, from which the following quotation is taken: "We are merely seekers in the field of art. And in and through art we may be able to sense the strengths and weaknesses of man's endeavors. For as art, good or poor, expresses truly the conditions from which it springs, then art is indeed a reliable recorder of the vibration of life."

Form, which is the *raison d'être* of this book, is discussed in a series of chapters which define its relationships to truth, logic, function, color, decoration, space, theory, tradition, beauty, taste and imagination.

In the Epilogue, Mr. Saarinen has some interesting things to say about art education and the insidiousness of dogmatic teaching practices — "First, it must be borne in mind that the reproductive trend in art-development increasingly gained ground until ultimately the trend was so generally accepted as to make skillful reproduction the supreme virtue. Naturally, this trend became the leading thought in art education as well." The real message of the book, however, is summed up in a statement made early and again in a final section — "Art form of man is something which is within man, which is strong when man is strong, and which declines when man declines." Art is thus well established as a sensitive barometer of the cultural level.

SEARCH FOR FORM should be on the "must" reading list of anyone whose interest in architecture, art and design is founded not merely on the surface elements, but rather, on their fundamentals, and on a desire to seek a richer experience and meaning from the arts, and an answer to some of the questions that will always arise whenever really creative work is being done.

ABOUT LE CORBUSIER

Le Corbusier. Edited by Stamo Papadaki with essays by Joseph Hudnut, S. Giedion, Fernand Leger, J. L. Sert, and James Thrall Soby. The Macmillan Company (60 5th Ave., New York 11, N. Y.), 1948. 8½ by 11½ in. 152 pp., illus. $7.50.

Once again here is the familiar picture of Le Corbusier in a quadruple role — as architect, town planner, painter and writer. In a successful effort to give a real estimate of one of the most unusual minds in contemporary art, the editor of this book has included excellent contributed essays, which accompany each of the four main topic headings.

Under the first section which deals with Le Corbusier as an architect, there is a very fine article by Joseph Hudnut which contains the following noteworthy quotation: "The houses of Le Corbusier are beautiful essays in an art of abstractions, but they are important only as they state the problem of modern architecture in its relation to our society and the eager progress of our technologies. They tell us that modern structure enveloping a modern light may be capable of emotional content; the world had waited long for that message. . . ." An essay on color in architecture by Fernand Leger concludes the chapter.

The topic of Town-planner includes an article entitled "From Architecture to City Planning" by J. L. Sert, and also illustrations of some of Le Corbusier's most notable city planning schemes.

The development of Le Corbusier as a painter is traced from his early purist period to his later murals which were used as an integral part of many of his architectural designs. The text written by James Thrall Soby discusses Le Corbusier as a painter, and his collaboration with Jeanneret. This section contains many illustrations that eloquently point out Le Corbusier's grasp and preoccupation with the principles of line, color, mass, organic and abstract.

Under the topic heading of Writer, selections are given from Le Corbusier's pen. His books are usually interdependent on his projects, and as a writer he is thus an interpreter of his design principles.

LE CORBUSIER is recommended reading since it brings into clear focus the main facets of a contemporary personality and genius capable of brilliantly organizing four important allies — architecture, city planning, sculpture and painting.

AND BY LE CORBUSIER

New World of Space. By Le Corbusier. Reynal & Hitchcock (383 Madison Ave., New York 17, N. Y.), 1948. 8½ by 11 in. 128 pp. illus. $6.00.

NEW WORLD OF SPACE is a unique kind of autobiography since it presents pictorially the works of the author's lifetime, and so, through the medium of his own architecture, paintings and words, Le Corbusier shows what has been his life — his work.

In retrospect of his accomplishments, the author evolves the theme that modern art and architecture are an exciting adventure in space, and a new conception of space.

Le Corbusier's works are handsomely presented and include many of his early villas, the Swiss dormitory building in Paris, the League of Nations project, some of his South American buildings and projects, city plans and many paintings.

NEW WORLD OF SPACE is an excellent autobiography and compilation of Le Corbusier's life's work, beliefs and principles of architecture and art, and a worth-while addition to his already numerous publications.

CITY PLANNING

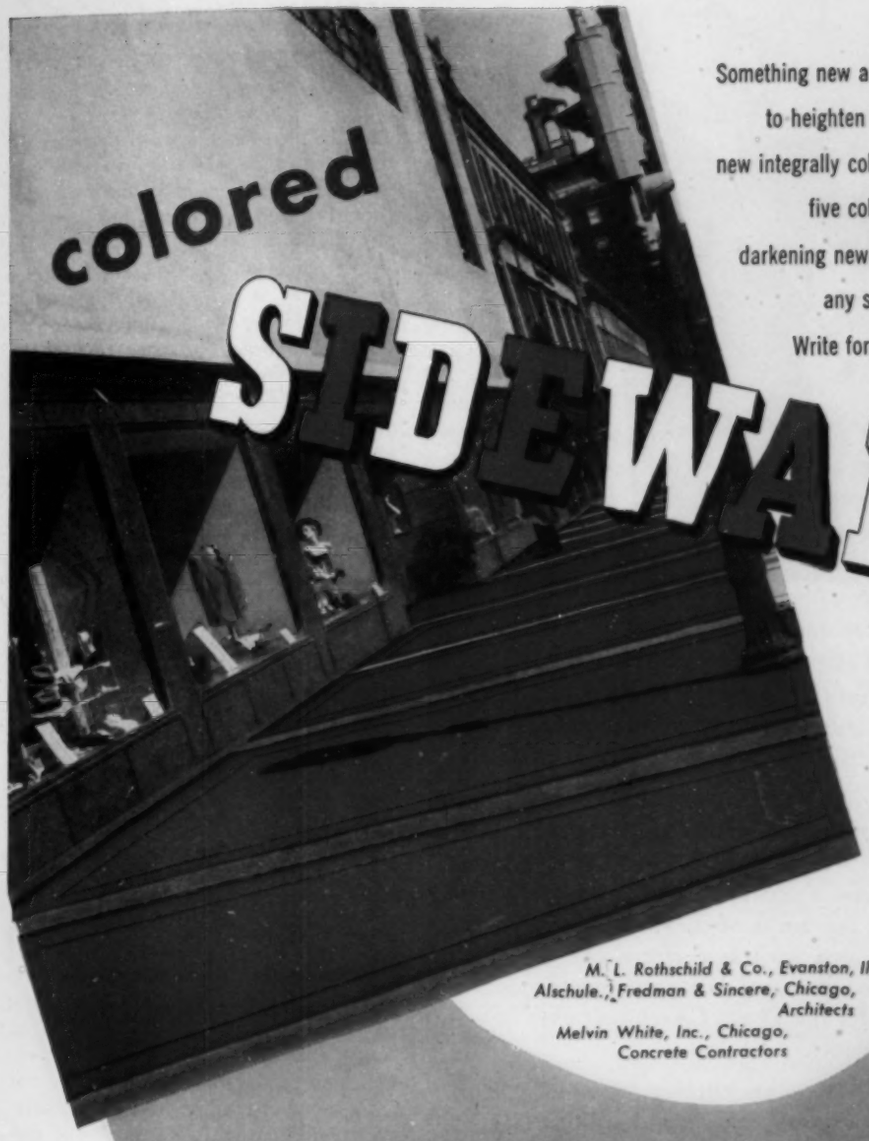
THE OLD AND THE NEW

Oxford Replanned. By Thomas Sharp. The Architectural Press (9–13 Queen Anne's Gate, London S.W. 1, Eng.), 1948. 7 by 9¼ in. 224 pp. illus., maps, photos, diagrams. 15s.

In writing OXFORD REPLANNED, Thomas Sharp reveals himself not only as an experienced and wise town planner, but also as an artist of first rank. It is not enough for him that in replanning Oxford in order to preserve it care should be taken of the old, and room made for the new. To him, the great beauty of Oxford depends on many things other than just the superb and separate quality of the old buildings — rather, a surprise vista, a spire, a hidden quadrangle or a panorama.

In Mr. Sharp's plan all the necessary rehousing, rerouting, and replacing is carefully and adequately considered, and yet, with his intimate knowledge of the city, he advocates that as

(Continued on page 30)



colored SIDEWALKS

Something new and dramatic in color engineering—to heighten the beauty of any facade. Colorundum for new integrally colored sidewalks is made in five colors. Horn A. E. Dispersed Black is used for darkening new concrete sidewalks to black or any shade of grey. Both products simple to use. Write for the newest information.

M. L. Rothschild & Co., Evanston, Illinois
Alschule, Fredman & Sincere, Chicago, Architects
Melvin White, Inc., Chicago, Concrete Contractors

newest and most significant step in modern shop and store design

A. C. HORN COMPANY, INC.

manufacturers of materials for building and construction

10th STREET & 44th AVENUE • LONG ISLAND CITY 1, N. Y.

HOUSTON • CHICAGO • SAN FRANCISCO • TORONTO

SUBSIDIARY OF Sun CHEMICAL CORPORATION

look-
no hands!

THIS IS
YOUR HEATING SUPERINTENDENT
WHEN YOU HEAT
WITH DRAVO HEATERS

IT's an *automatic* fireman who goes on the job at the flip of a switch for the Sanatex Company of Chicago. It cuts operational and maintenance expense to the bone and solves what had appeared to be an expensive heating problem for this processor of wiping cloths.

Not only is an attendant unnecessary—boiler-room and ductwork expense was eliminated, too, by installation of a Dravo *Counterflo* Heater. Centered along the east wall, the Dravo *Counterflo* Heater is entirely self-contained—requiring only power and fuel lines and a small vent stack. Its 1,000,000 BTU output is directed slightly over the heads of the workers to blanket 10,000 square feet of unbroken plant area with draft-free warm air. Cold corners and excessive roof heat loss are eliminated. During summer months, a touch of the selector switch converts the Dravo *Counterflo* Heater immediately into a powerful air-circulating unit.

Dravo *Counterflo* Heaters are available in sizes ranging from 400,000 to 2,000,000 BTU output. Equally efficient with oil or gas and with or without ductwork, they can be floor-installed, wall-hung or roof-hung. Write for Bulletin HV-516. Heating Section, Dravo Corporation, Dravo Building, Pittsburgh 22, Pennsylvania.

DRAVO

According to Mr. Schulman, President of Sanatex Company, the Dravo *Counterflo* Heater "is the best equipment we ever had. Delivery of heat is virtually instantaneous when the unit goes into action—an important fuel-saving feature which eliminates the need for anticipating cold spells or keeping the heater in operation when the plant is closed."

Dravo also manufactures the *DRAVO CRANE CAB COOLER* for air conditioning hot-metal crane cabs

DRAVO CORPORATION

PITTSBURGH • CLEVELAND • PHILADELPHIA • DETROIT • NEW YORK • CHICAGO
ATLANTA • BOSTON • *Sales Representatives in Principal Cities*

REQUIRED READING

(*Continued from page 28*)

much as possible, the subtleties brought about by time and accident be preserved, and believes that much of what Oxford is famous for depends on those things.

The actual design of the new buildings for the city is not shown in the book, but for building materials it is suggested that ". . . probably best of all, for the larger buildings at any rate, may be a covering of thin carefully finished slabs of concrete or reconstructed stone used as a 'skin' to cover raw constructional surfaces — a true modern counterpart of traditional ashlar.

"Along with this matter of a harmonious building material, the proper regulation of building heights is of first rate importance in the preservation of the city's character. Though it would clearly be wrong to stop the addition of new features to the famous sky-line, every building which it is proposed to raise above the general level will need to be considered with the closest scrutiny for unexpected effects.

"Certainly nothing lumpish should be added to the delicate interplay of spire and tower and dome."

Some indication of Mr. Sharp's preference for designs to be used can be detected when he advises that perhaps through collaboration of the best architectural minds, and the disqualifying of any eclectic sort of approach, the 20th century might make its own real contribution to Oxford.

Included in the book are many maps, drawings, photographs, tables and diagrams which are pertinent and necessary to the factual side of the problem.

OXFORD REPLANNED is an expert report on a very ticklish problem — that of replanning a city to include all the facilities needed in a modern city, plus the taste, imagination and scholarship required to preserve the architectural composition and treasures that are already there.

PHILADELPHIA HOUSING

Urban Home Ownership: A Socio-Economic Analysis With Emphasis On Philadelphia. By Henry McCulley Miller. College Offset Press (148–150 N. 6th St., Philadelphia 6, Pa.), 1947. 6¼ by 9½ in. xx + 162 pp. tables, statistics, graphs.

The first part of this book is a study of urban home ownership on a national basis. It begins its fact finding with the year 1890 and continues into the present. There is a discussion of home ownership by cities, from a regional aspect, and a chapter entitled "The Pros and Cons of Home Ownership." The question of home ownership is also discussed in

(*Continued on page 204*)

ARCHITECTURAL

RECORD

WHICH WAY LIES FREEDOM?

FOUR current situations point up the adage about eternal vigilance being the price of freedom — in these cases freedom for creative, independent architectural design and practice. They lend added weight to the sympathetic but forthright warnings of Miles Colean in his able discussion of "The Architect's Stake in Private Enterprise," * for government agencies, national, state, or local, inevitably follow the pattern he describes. Then the struggling architects (and architecture) must submit to the bureaucratic strait jacket from which only a Houdini could escape.

Two of these governmental agency plans for architectural control came in for their full share of discussion at the alerted A.I.A. Convention at Salt Lake City and appropriate resolutions were passed expressing the need for greater creative freedom for architects in private practice. But such resolutions cannot be made effective without the active support by the Chapters and individuals in a concerted program. The Veterans Administration seeks to have its own architectural bureau, some 900 strong, to design future veterans' hospitals, reversing its wise procedure of employing private firms. A glance at the perspectives of the hospitals already designed † by private as compared with administration architects shows what can be expected if the VA is successful in its efforts with the Congress.

The second need for greater freedom which the Convention discussed, is in the FHA housing standards and their interpretation. While minimum standards are certainly desirable to insure adequate accommodations, frozen patterns discourage better and more ingenious solutions in plan structure and facilities, and stultify attempts to improve them.

The third is like unto the second, for while some architects find the hospital planning standards set up by the U. S. Public Health Service a boon in time-and-thought-saving, and embrace them in toto, there are others who find them frustrating. They would prefer to develop new solutions rather than take them all cut-and-dried, and thus hope to advance the art and science of caring for the sick.

And the fourth is in the nature of a *fait accompli* — the state of California has its own bureau to perform the architectural services "needed for California's $250,000,000 state building program for the construction of new hospitals, institutions and office buildings." And the Recruitment Section of the State Personnel Board is circularizing widely for architectural designers and draftsmen, each to take a "permanent civil service position at an attractive salary." This is certainly in competition with architectural firms in private practice, firms which could render the state efficient, even inspired service.

We believe with Miles Colean that the interests of both the public and the profession are best served by architects working in the freedom inherent in a private-enterprise system rather than by national, state, or local bureaus which offer full architectural services in addition to their normal functions as clients or owners stating requirements, establishing standards and programs, financing and maintenance.

---

*ARCHITECTURAL RECORD, June 1948, pp. 97-99

†ARCHITECTURAL RECORD, Oct., 1947, p. 104.

Kenneth K. Stowell

EDITOR

Kenneth C. Welch Photos

THE EIGHTIETH

Top: President Douglas Orr greets ex-President James R. Edmunds at the reception at the Country Club as Mrs. Orr greets Morris Ketchum. Above: President Orr, ex-President Ashton and Leon Arnal watch James Edmunds and gold-medalist Maginnis

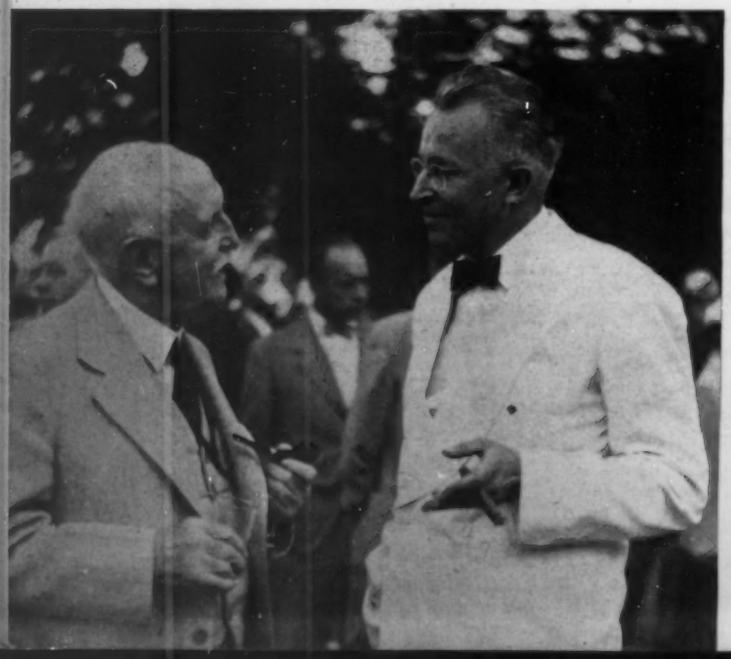
SALT LAKE CITY proved to be a happy choice of location for the Eightieth Convention of the American Institute of Architects, for here "every prospect pleaseth" and somehow man does not seem so vile. Both the weather and the setting were ideal and our hosts most cordial, gracious, and thoughtful. Everything possible was done for the pleasure, comfort, and contentment of the 800 and more officers, delegates and friends who were on hand. All left with the wish that they could have stayed longer and the hope that they might soon return.

The business of the convention was carried on with smooth dispatch, all according to Hoyle or Roberts, thanks to the careful planning and the hours of toil the Board had expended on its Report. The seminars dealing with various phases of the fundamentals of design were made an integral part of the program rather than pre- or post-convention events. The social events were most enjoyable interludes and the sightseeing was eye-opening and awe-inspiring in variety, interest, and beauty. All in all, it was a most memorable occasion.

It is naturally impossible even to attempt to summarize the addresses or the discussions of the various seminars. These will undoubtedly be covered in detail

Glenn Stanton, new Vice President, explains it all so simply to the quizzical Mr. Maginnis at the President's Reception

Dean Koyl, Dean of Pennsylvania's School of Architecture, is amused at newly-elected Fellow Leon Arnal's skepticism



CONVENTION OF THE A.I.A.

Salt Lake City, Utah

in the published proceedings so that those who were unfortunate enough to miss the personal presentation of the ideas propounded will be able to peruse them at their leisure.

The Convention opened June 22nd with words of welcome by Hugh C. Lewis, President of the Utah Chapter, by George Cannon Young, Regional Director of the Western Mountain District, and by Hon. Earle J. Glade, Mayor of Salt Lake City. This was followed by the presentation of the Fine Arts Medal to John Marin and the Honorary Corresponding Membership awards to Sir Patrick Abercrombie, Auguste Perret, Ivar Justus Tengbom, and George Gray Wornum.

The first seminar presented an illuminating and comprehensive summation of the "Physiology of Shelter" by Dr. C. E. A. Winslow. L. Morgan Yost was moderator.

The second seminar lecture was held after the luncheon at the Starlite Garden atop the Hotel Utah, headquarters of the Convention. The bright, glass-walled, canopied garden looked out across the plain and to the surrounding mountains, and thus provided a perfect setting for Victor Roterus' lecture on "Geographic Bases of Planning." Louis Justement was moderator of this interesting seminar.

Kenneth K. Stowell Photos

Two proper Bostonian Fellows discuss certain topics of mutual interest. (Magazines' Art Directors sometimes insist that one caption balance another, so these few words are added here to fill in space to equal that of the caption on the opposite page!

Morris Ketchum of New York, in a serious mood, evidently has asked a pertinent question that makes one scratch and think

Program-arranger-extraordinary Walter Taylor takes up some amusing if very important matters with moderator L. Morgan Yost

Washington headquarter's Ned Purves may be finding it difficult to convince Clarence J. Paderewski, but undoubtedly he is right

A study in esthetics, or the appreciation of beauty. Joseph D. Leland with Charles Cellarius and Miss Sally B. Cortright

Affable editor Henry Saylor produces some of his famous "asides" with James Gambaro, P. M. Hoffman and Harold Bush-Brown

"The Esthetics of 20th Century Architecture," a seminar, proved a stimulating, erudite, perhaps even esoteric, discussion of the philosophy of esthetics from the point of view of a professor of philosophy, a professor of English, and a practicing architect—respectively Dr. Russell Ackoff, Dr. Carl W. Condit, and Edgar I. Williams. B. Kenneth Johnstone, Chairman of the Committee on Education, A.I.A., was the moderator.

In the evening the delegates were treated to the beautiful color slides taken by, described by, and illustrating the philosophy of, Alden Dow, setting forth "The Evolution of a Design."

The business of the Institute and the Report of the Board occupied the morning session Wednesday, June 23rd, which was followed by the luncheon lecture on "Regional and Local Planning" by Robert B. Mitchell, with Louis Justement again moderator.

Three seminars followed in the afternoon. The one on "Dwellings" was largely devoted to the subject of "Design for Safety" which was thoroughly covered in all its aspects by D. Kenneth Sargent and Dr. C.-E. A. Winslow. L. Morgan Yost was Chairman. A joint seminar on "Urban Planning" and "Retail Business Buildings," under Chairman Kenneth C. Welch, was held in the afternoon and "The Neighborhood and

Architect-moderator-photographer Kenneth C. Welch astounds two Californians, John Leon Rex and John Savage Bolles

Mrs. Thomas D. Broad of Dallas is justly proud of her modest husband, newly-elected Director of the Gulf States District

Educators Harold D. Hauf of Yale, Henry Kamphoefner of North Carolina and Leopold Arnaud of Columbia get together

Salt Lake City Tribune Photo

Pietro Belluschi, now F.A.I.A., with Marshall Shaffer of the U. S. P.H.S. and George C. Young, Director Western Mountain District

Charles-Edward A. Winslow discusses the physiology of shelter with B. Kenneth Johnstone, moderator of the first seminar

Salt Lake City Tribune Photo

Shopping Center" was presented by Morris Ketchum, Jr., and by Pietro Belluschi. Stanley McCandless discussed the problems of store lighting.

The President's Reception was the highlight of the day's social activities and busloads of delegates and friends journeyed to the beautifully situated Country Club. The expansive terrace, overlooking the green and fairway and far beyond to the snow-capped peaks above the canyons, was an ideal setting for this gracious gathering. All needs for refreshment were bountifully supplied by oft-refilled glass and plate. Conversation grew as expansive as the vista and the occasion was thoroughly enjoyed. Those who lingered on were enchanted by the magnificent sunset, a fitting climax to a delightful reception.

In the evening, Prentice Bradley explained the "Potentialities of the Grid" in the seminar on "Modular Design," L. Morgan Yost, Chairman, and made his points clear with numerous lantern slides.

Thursday morning was given over to the reading and discussion of the Report of the Board and the seminars were resumed at the luncheon meeting where, under the chairmanship of Louis Justement, Thomas J. Kent, Jr., explained "Site Planning Principles."

(*Continued on page 174*)

Ross Shumaker of Raleigh, M. E. Green of Harrisburg and M. H. Starkweather of Tucson present their registration credentials

Mr. and Mrs. Raymond Ashton find Princeton's Dean Shirley Morgan's explanation most amusing before the Annual Dinner

The flash bulb, not the conversation of Temple H. Buell, had the seemingly soporific effect on ex-President Charles D. Maginnis

Julius Shulman Photos

PLANNED FOR TERRACE LIVING

House for Mrs. Paul Kingsley, Pacific Palisades, Calif.

J. R. Davidson, Designer; Landscaping by Ernest Wertheim

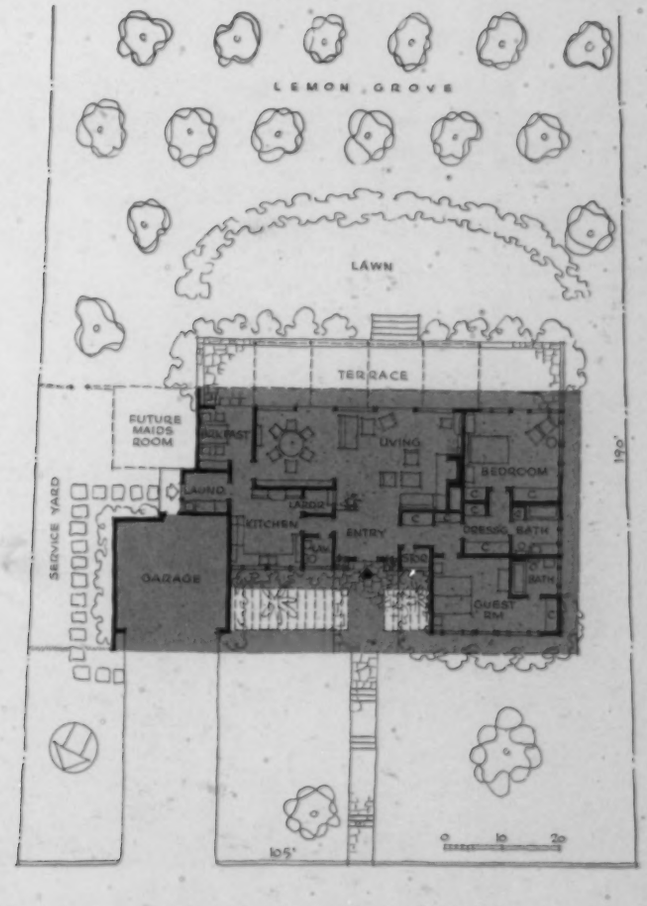
LIFE in this suburban Santa Monica home obviously centers on the spacious flagstone terrace stretching across the entire garden side. Living and dining room, breakfast room and master bedroom all open directly to the terrace and share with it a broad view of distant hills and the Pacific beyond the owner's lemon grove. Alternating sliding and stationary 6 ft. 9 in. glass panels form the wall along this side of the house. A three-section awning, 40 ft. long, shelters all but a small corner of the terrace, yet is easily adjusted.

The plan is simple and direct, keyed to an easy hospitality and a southeast exposure. A local restriction forbidding a house of less than 2400 sq. ft. resulted in an unusual but welcome amount of storage and closet space (see plan on page 95). Exterior walls are stucco, foundation is reinforced concrete. Floors are cement, with rubber tile in bathrooms, kitchen and breakfast room. Heating is by a radiant floor panel system.

All major rooms, including the master bedroom (far left of photo on opposite page), living room and breakfast alcove, open directly to the terrace. Awning is maroon and white, terrace furniture apple green metal frame with natural string

Ceiling of entrance hall (right) is fir plywood, forming a cove for indirect lighting toward living room. Walls are dark cocoa, carpet is a very light cocoa pebble weave. A screen of translucent glass separates hall from living room: Main entrance (below) is flanked by plant containers in obscure glass alcoves

Julius Shulman Photos

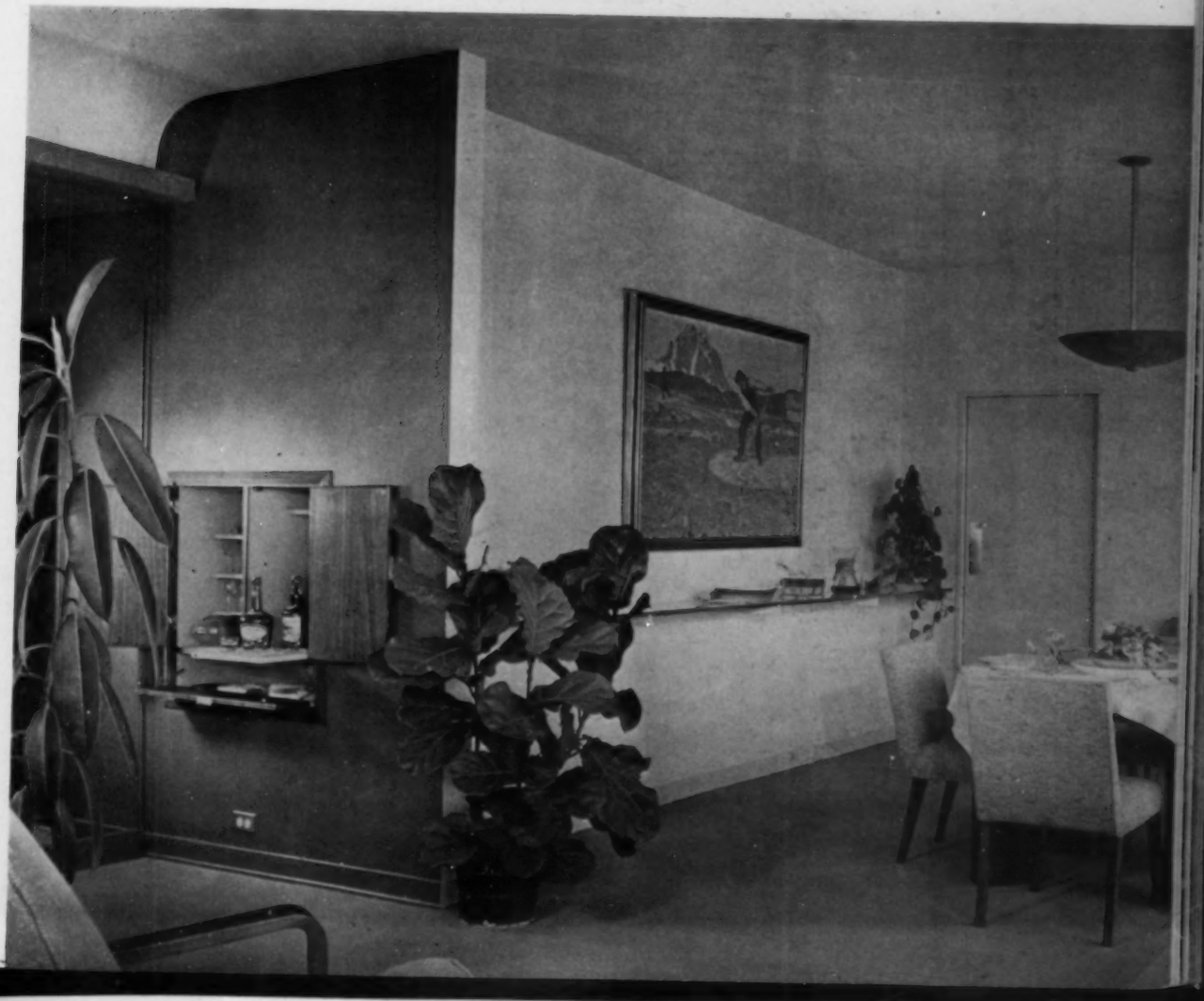


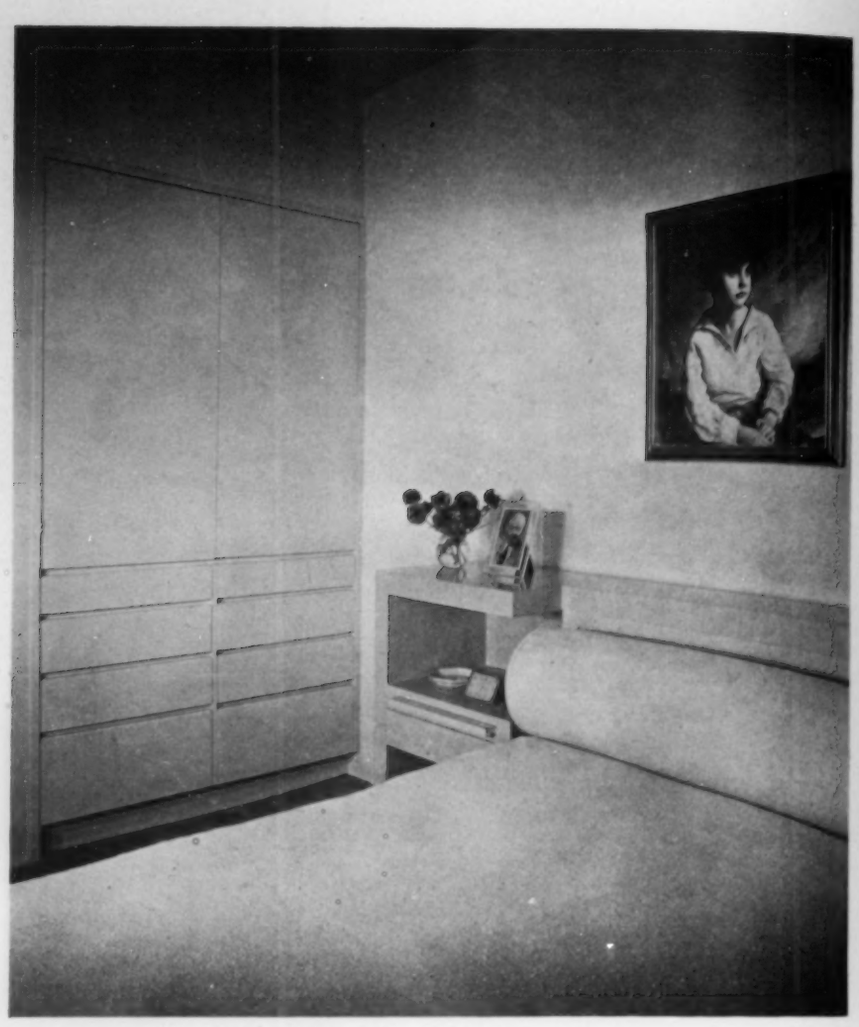
The front of the house (above) is French gray stucco; soffit of roof overhang, covering the flagstone walks, including wood trim and "egg crate," light gray; entrance door, dark gray. Plan (right) shows the generous storage and closet space

Living room (above and left) has built-in desk and bookcase in walnut and built-in davenport. Walls and ceiling are light gray, carpet is light cocoa, armchair is rich green. Fireplace and hearth 16-in. ceramic roof tiles laid in white mortar. Light cove above davenport is fir plywood, slightly stained gray and waxed, continuing entrance hall ceiling of same material

Convenient for hospitality is the built-in liquor cabinet in walnut, lined with light gray. Translucent glass screen separates hall and living room. Dining room walls and ceiling (below) are light gray; liquor cabinet wall in foreground is cocoa

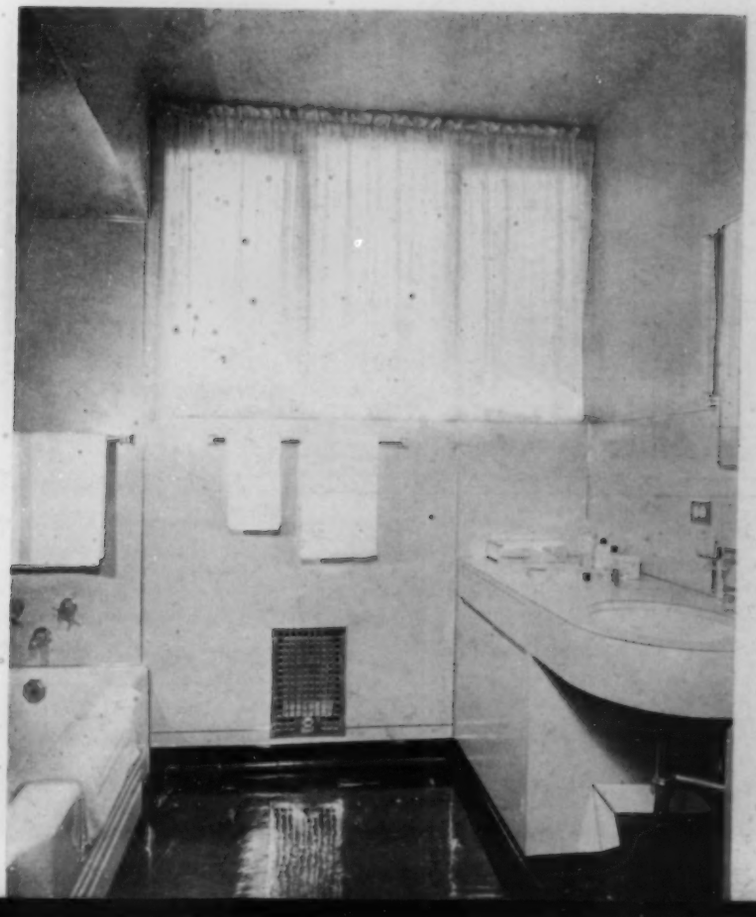
Julius Shulman Photos



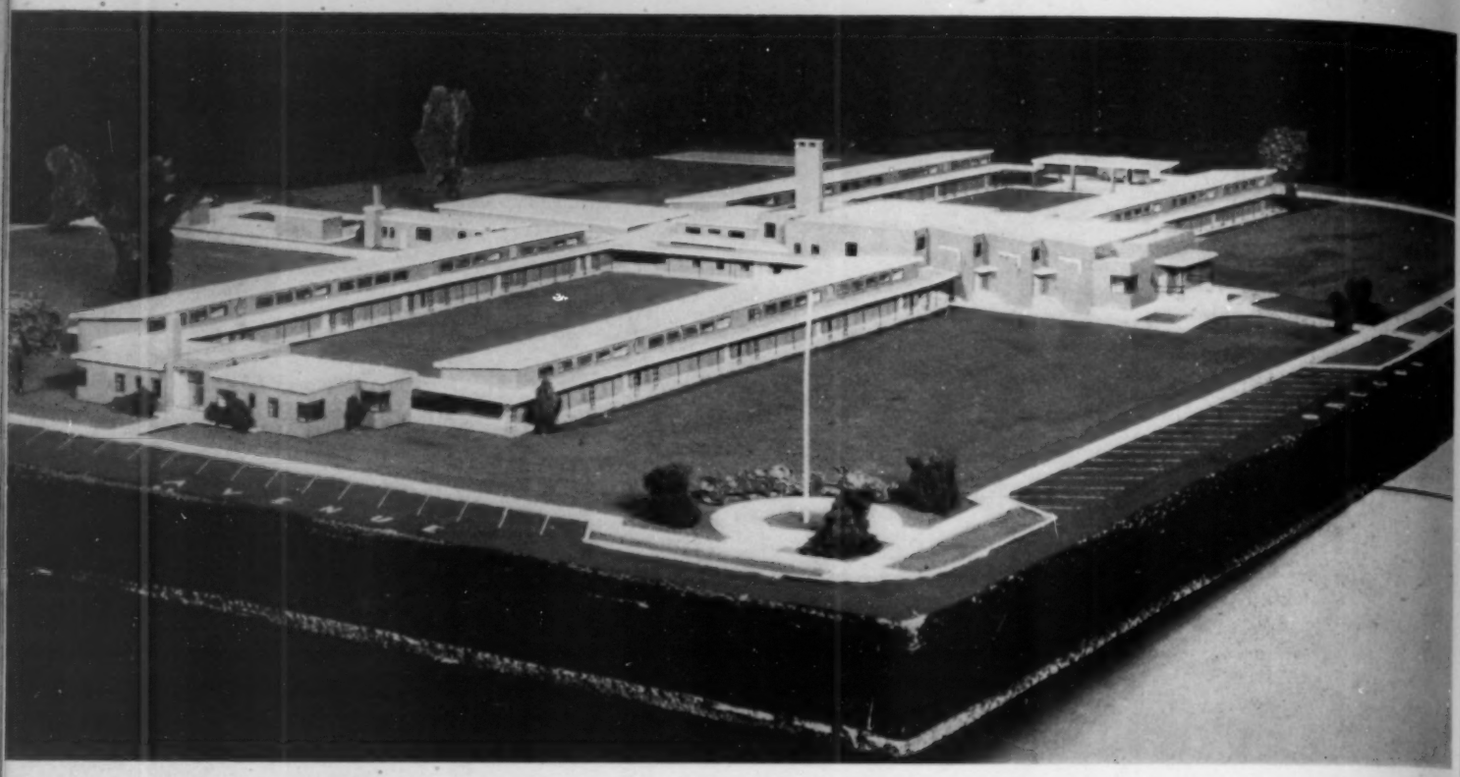


Master bedroom (right and across-page) opens directly to terrace, has plenty of storage space. Walls and woodwork are in pale rose, curtain and bedspread in natural, carpet a dusty rose pebble weave. Kitchen (below) has eggshell woodwork, red work top and splashback, yellow and white striped curtains, light tan marbleized rubber tile flooring

Julius Shulman Photos

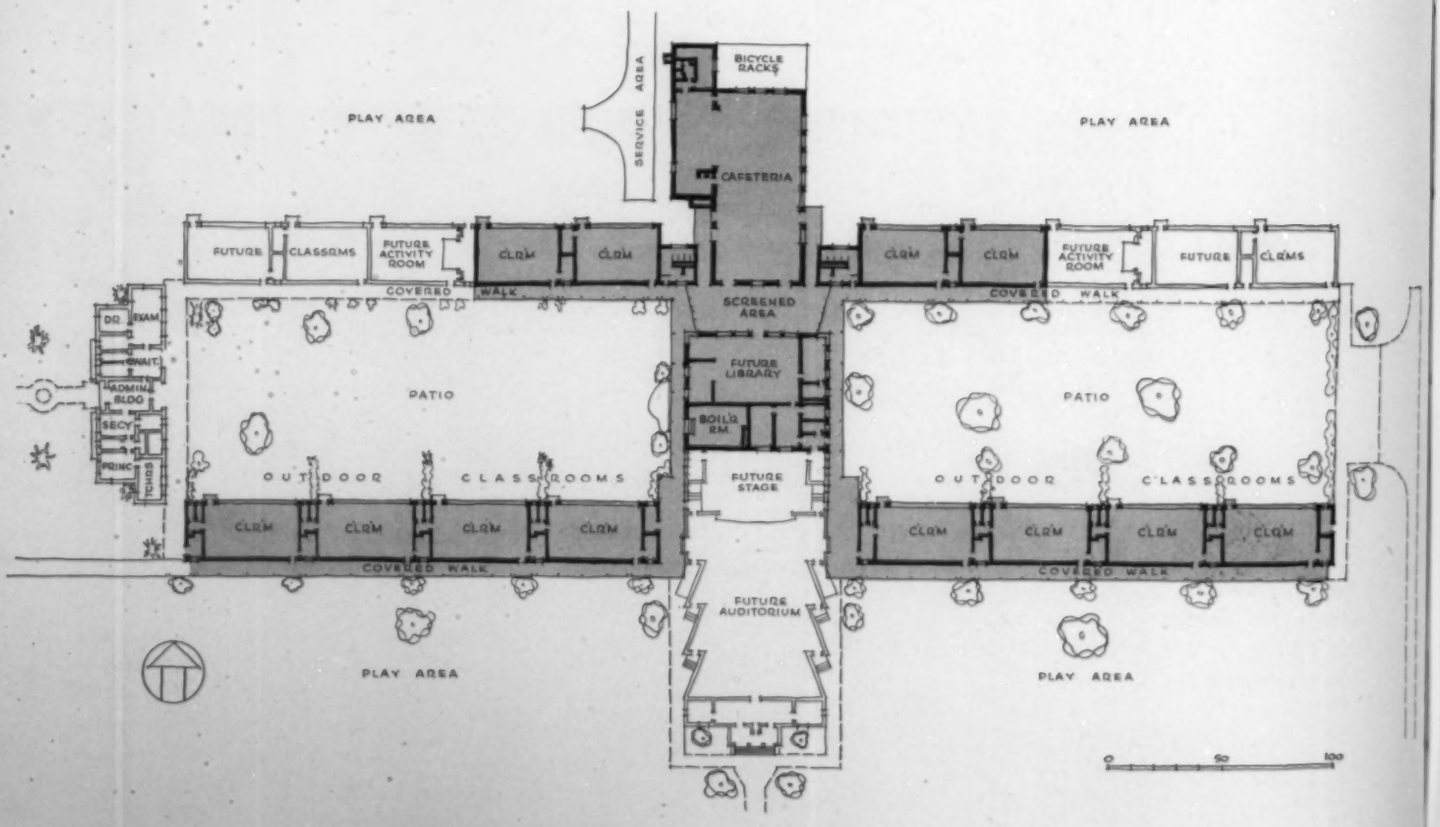


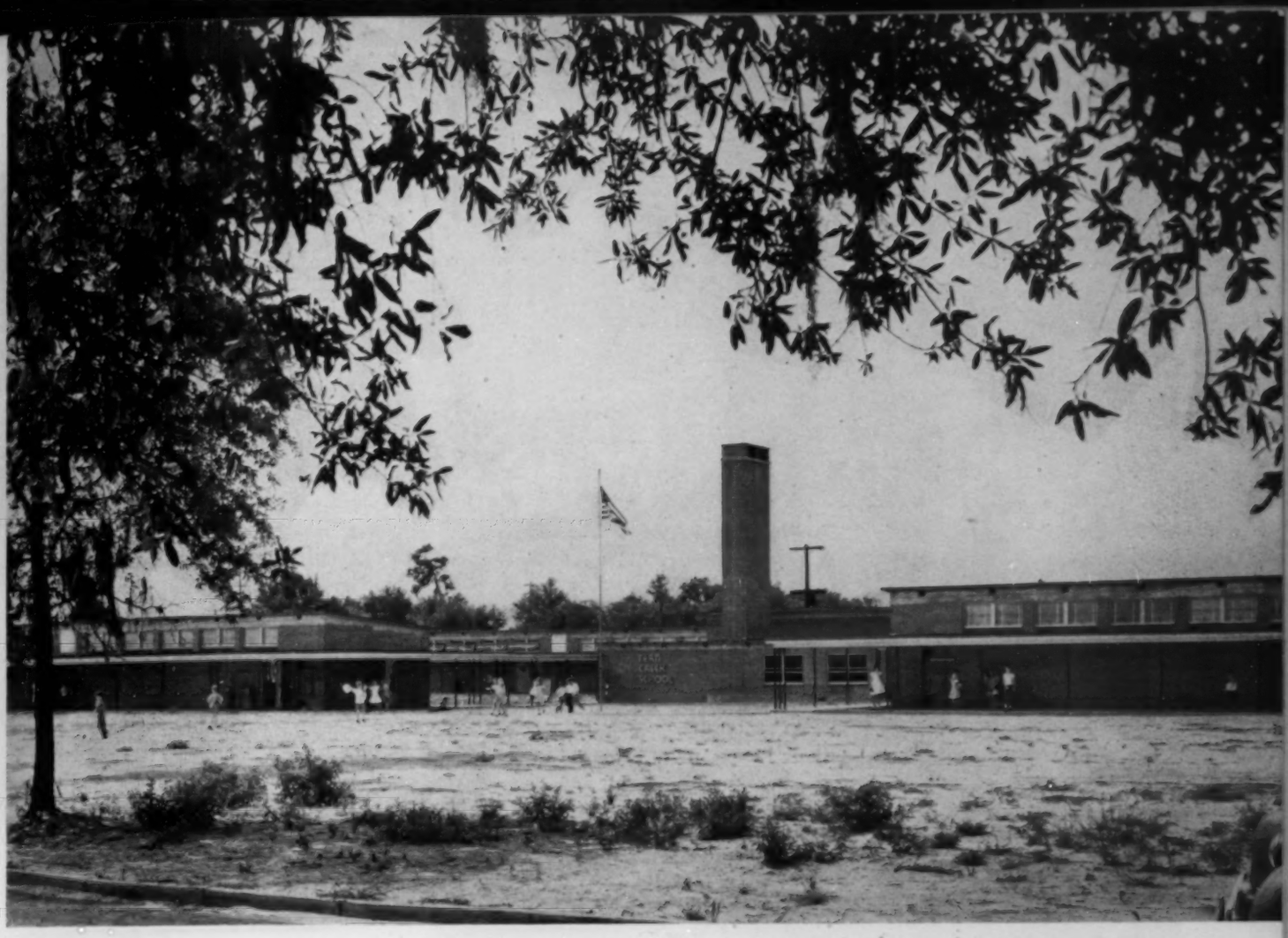
Each of the two bedrooms has its own bath, that for the master bedroom (right) reached through the owner's dressing room. Walls are light gray with white metal molding; floor is rubbertile in black and white



Kamper Photo

• *Model and plan, this page, indicate complete projected school; part now built is shown in the plan in gray. Opposite page, view of part completed*





Burgert Brothers Photo

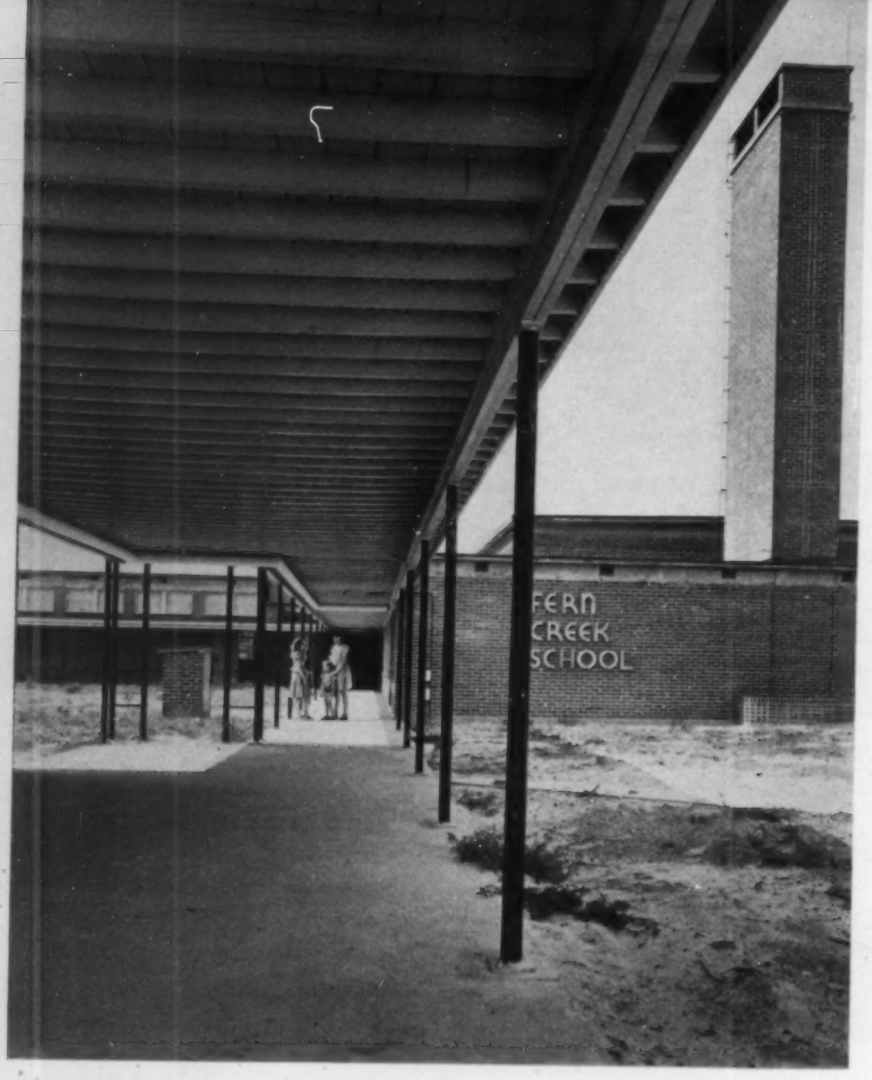
A PIONEER SCHOOL IN THE SOUTH EAST

Fern Creek Elementary School, Orlando, Florida

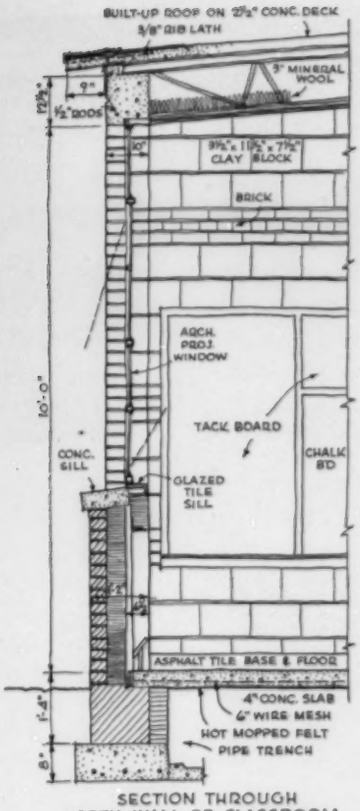
L. Alex Hatton, Architect

A PIONEERING DESIGN in its locality, this bilaterally lighted school went forward under special permission of code authorities, to progress beyond an obsolescent building code. The part shown in gray in the plan was built in 1947–8 for $209,750 at 70½ cents per cu. ft., or $8.75 per sq. ft. (walkways figured at ¼ cu. ft. or ¼ sq. ft.). The finger plan or campus plan arranges common facilities, such as the cafeteria-library and auditorium, in a central trunk unit running north-south; classrooms are in wings branching out east and west. The present administrative rooms can be converted without much disturbance into future dressing rooms off the auditorium. The patios between classroom wings will not be used for play space but will be landscaped. Primary grades occupy the southern wing of eight classrooms, and have space for outdoor teaching immediately adjacent.

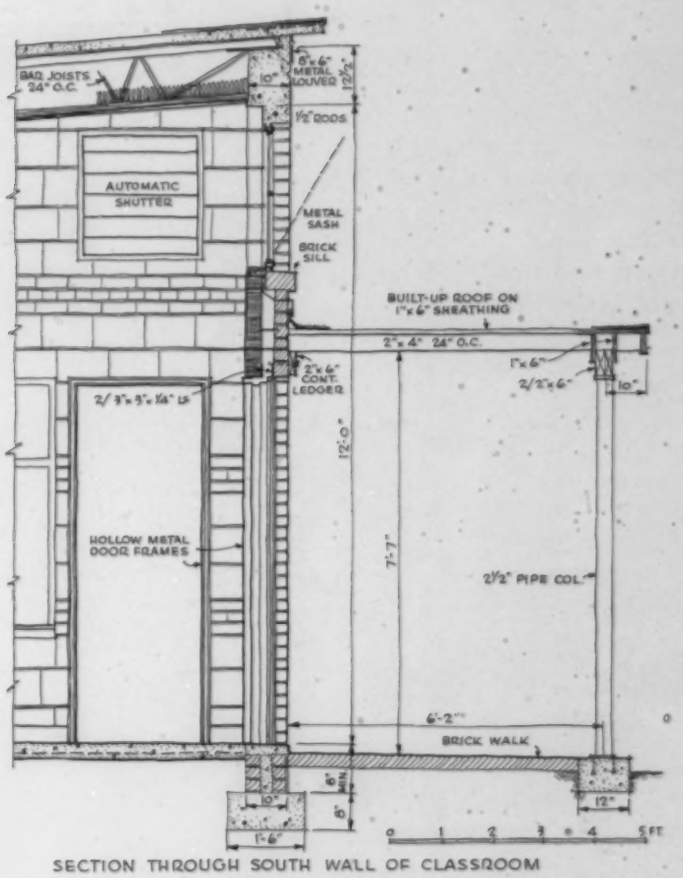
The fully developed plan will contain 16 classrooms, an auditorium seating 700, cafeteria (3 shifts of 200 each), a library, small clinic, and bus loading center. Construction is of cavity-wall masonry and fireproof concrete roof supported on bar joists.



Cavity wall construction uses 4 in. of red brick for outside face, 3 in. air space, 4 in. of brick and concrete block in interior. (Detail shows openings left for ventilation.) Cost of bar joists only slightly exceeded local lumber cost. Ceilings are of acoustical tile on wooden furring; walls of soft pine yield tack space. Plastering omitted except in toilet rooms and the kitchen, where it is used in conjunction with ceramic tile



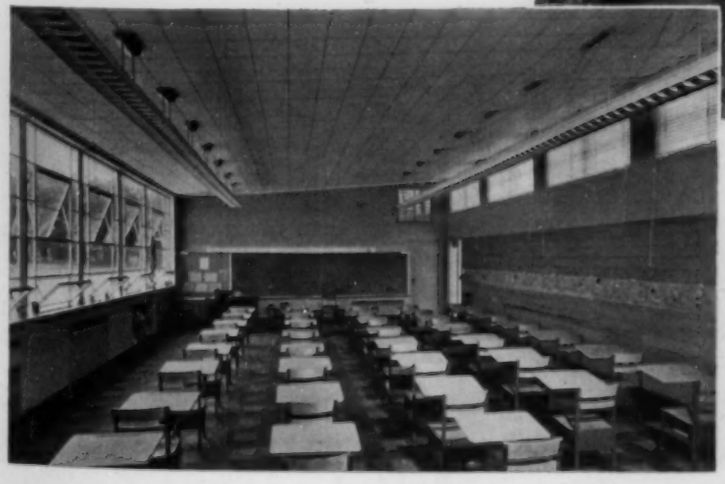
SECTION THROUGH
NORTH WALL OF CLASSROOM



SECTION THROUGH SOUTH WALL OF CLASSROOM

Classroom interiors are gay, painted on brick or block in two shades of green according to light source; entry doors canary yellow with black design around door knob. Chalk boards are green glass. Ventilation by attic fan in cloak room (ceiling 7 ft. 8 in.). Each classroom has conduit for audio-visual aids, is wired for inter-communication system from office

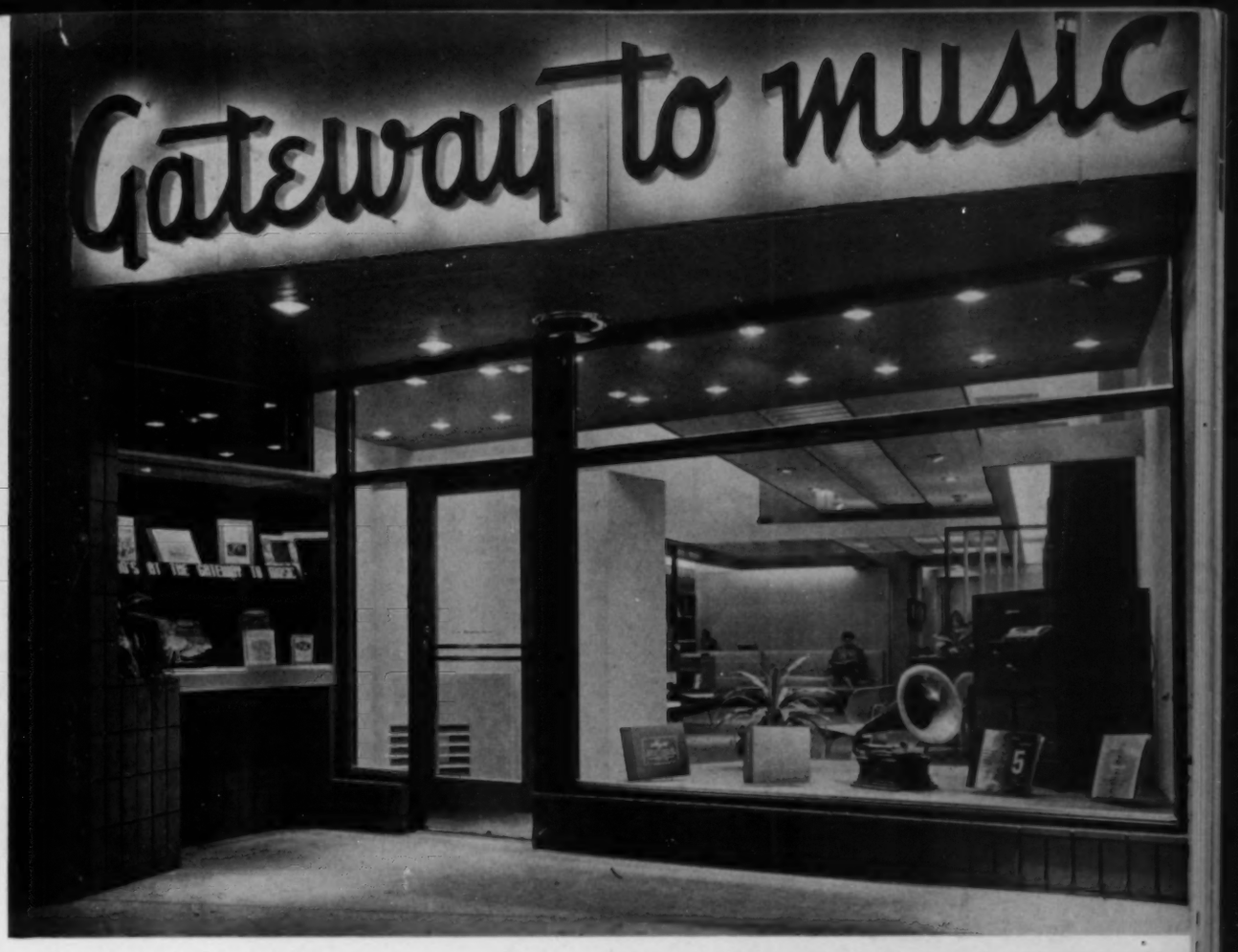
Burgert Brothers Photos



Cafeteria feeds three shifts of 200. Heating of school is by low pressure steam from central boiler room. Unit heaters are used in cafeteria, recessed convectors in classrooms

Burgert Brothers Photos

Steel pipe supporting walkway canopies are occasionally doubled to relieve monotony and trellised for plants. Main classroom windows are steel architectural projected; elsewhere steel double-hung



Julius Shulman Photos

STORE FOR THE BROWSING MUSIC LOVER

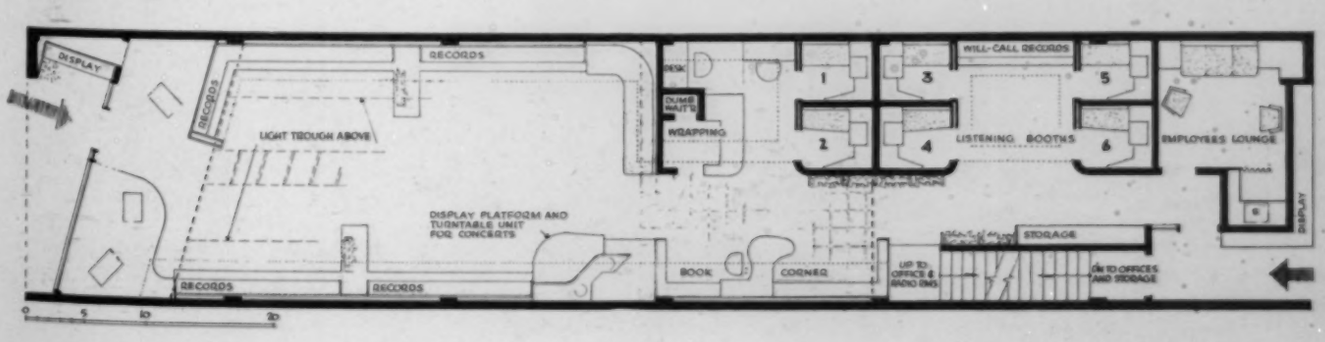
Gateway to Music, Inc., Los Angeles, Calif.

Rolf Sklarek, A.I.A., Architect

PARADISE for the music lover is this hospitable Los Angeles store where he may browse among books and albums and listen to records for as long as he likes. He even is treated to a welcoming cup of coffee when he enters!

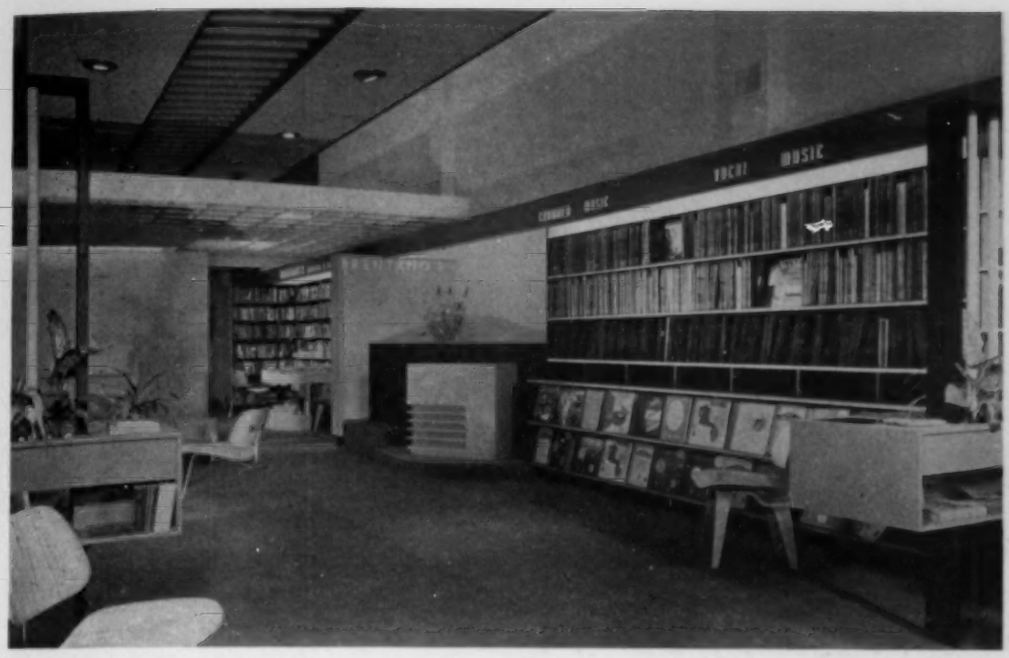
Specializing in phonograph records (serious music only), with the emphasis on imported recordings from all over the world, the store also sells radios and television sets. A book department operated by Brentano's rounds out the merchandise offered with books on music and art and music scores. The store has a well established clientele and does not depend on street traffic; it has a weekly radio program of recordings on a local station, supplemented by free record concerts monthly in its own quarters.

Requirements which the architect had to meet in



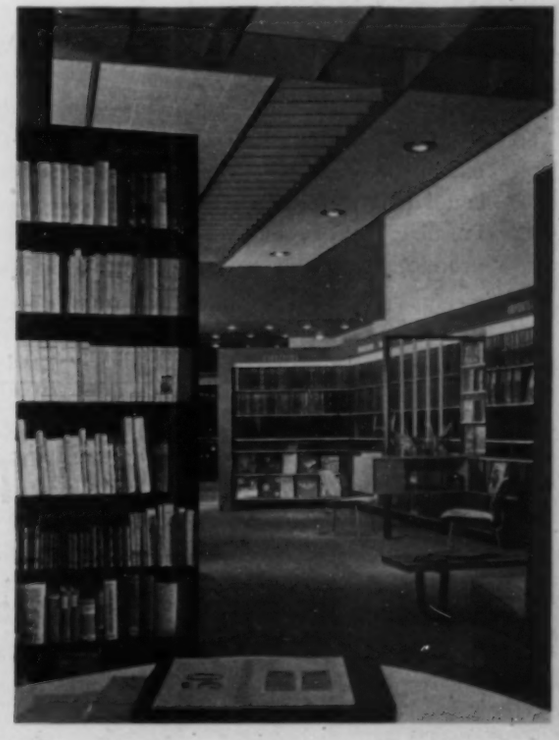
Julius Shulman Photos

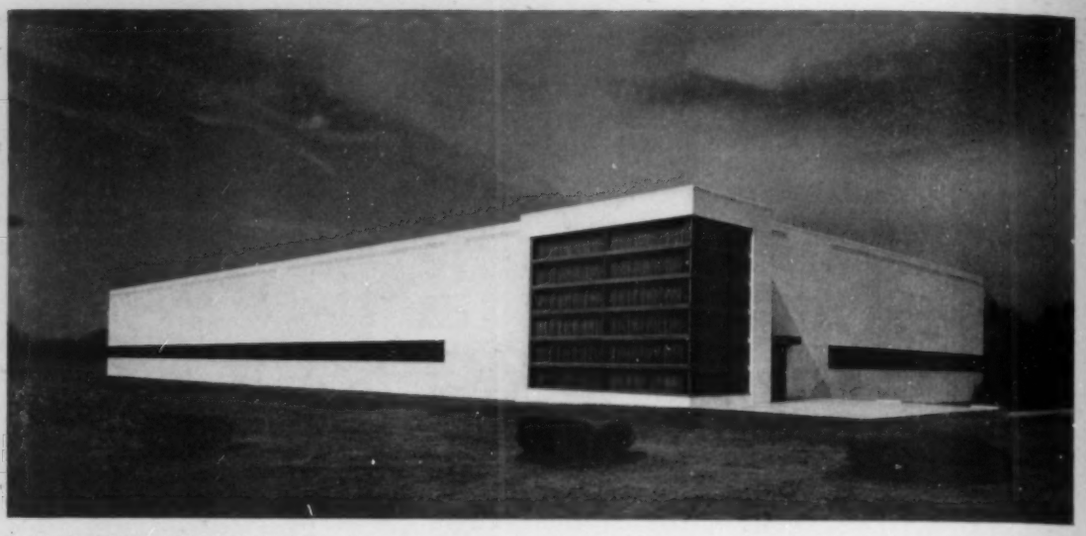
For economy's sake all fixtures were made of soft wood and painted. Record shelves are lined with black battleship linoleum to prevent scuffing of albums. Strong colors are used throughout: light cove facias are red, egg-crate ceiling over rear portion is yellow, carpet green, walls are yellow, red and green



Records are lighted directly from concealed fluorescents in light cove above record shelves, general illumination is from concealed fluorescents in upper light trough. Spots in light trough are used for accent

remodeling the 20- by 100-ft. premises for the Gateway included considerable storage and shipping space for the import and export of records, and a large main sales floor open enough to provide space for the monthly concerts. The existing full basement and the mezzanine over the rear third of the store were used to good advantage in meeting those requirements — the former to house the offices, shipping and storage facilities, and the latter for the radio and television department, of only secondary merchandising importance. The whole ground floor was given to record and book sales, and the front section was kept completely open by the omission of sales counters. Patrons select their albums directly from the shelves, using a special shelf at approximately counter height for their tentative selections. The wrapping desk and the book corner are strategically located at about the center of the store, controlling both front and rear entrances. A concert platform containing dual turntables for the monthly concerts and display space for special radio cabinets is also used by visiting authors and musicians autographing books and records at parties (see photo at left, below).





Underwood & Underwood Illustration Studios

AN ENLIGHTENED LOOK AT A FACTORY

One of the Nation's Most Progressive Industrialists Defines the Ideal

Factory Building in Terms of his own Concept of Management

GENERAL ROBERT JOHNSON, fabulous head of the Johnson & Johnson enterprises, has said that the vast majority of all American factories are obsolete and ought to be razed. Such a damning generalization is based partly on his own high standards of factory buildings and partly on his concepts of industrial management. The two go hand in hand in the Johnson organization, for the definition of what constitutes a good factory building springs from a peculiarly enlightened concept of modern management.

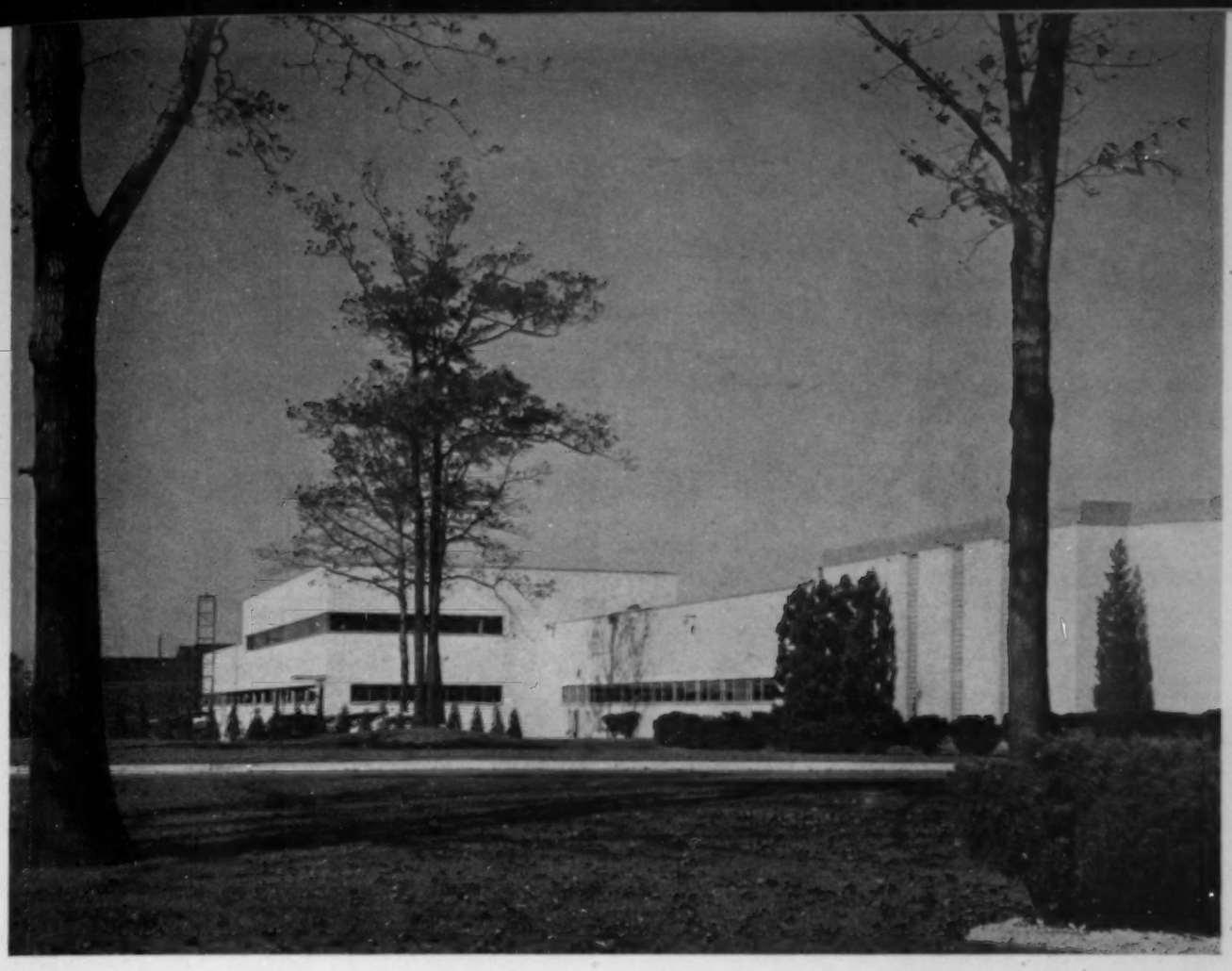
One major tenet, for example, is that a factory should be small. If the enterprise is large, like the Johnson enterprise is, production should be broken up among small units. If this idea seems to run counter to the familiar concept of effieiency and economy of mass production in the mammoth plant, it is consistent with two major principles by which the Johnson organization keeps its balance sheets in healthy condition.

One of these is that the worker must be considered to be a human being as well as a production unit; the other is that plant managers are also human beings. The task of the big boss is primarily one of arranging matters so that manager and worker can meet on common ground, so that the manager can run his own show without being swamped under too much direction from the main office, and can spend his time with his workers. That meeting ground is most likely to be, says the General, a small factory, ideal in its standards of working conditions, beautiful in appearance, conducive to pride in both manager and workers, conducive also to close contacts between management and worker.

General Johnson sums it up by saying that American

INDUSTRIAL BUILDINGS

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NUMBER 140



Industrial Tape Corp. Photo by Transfilm Studio

Nothing is more inspiring, or cheaper to acquire and maintain, says the Johnson management, than grass and trees. A landscaped setting for a factory conditions the worker, even before he has parked his car, to the Johnson philosophy of good housekeeping and self respect

business should reverse its present trend toward concentrated central management, and begin to "delete, delegate, decentralize and, if necessary, delouse the central staff." It is practically religion in the J & J family that a plant manager be an individual, responsible as such for his own unit in the Johnson world, be it manufacturing sterile bandages or Diesel engines.

There is no essential difference in standards for a plant making bandages and one making engines, according to this philosophy. There are six basic essentials to industrial management, says Johnson: (1) good housekeeping; (2) simplicity and beauty of plant and facilities; (3) human engineering; (4) decentralization; (5) emphasis on youth; (6) cost consciousness.

It is not so hard now to understand the General's statement that the large percentage of American factories are obsolete. It is not so difficult, either, to understand why J & J industrial plants differ widely from each other, each newer one reaching ever higher in the scale of architectural and engineering achievement.

The human engineering which is so important in all of this is not achieved by ignoring the more technical sciences. Indeed in building a new plant the J & J organization strains to the utmost the ingenuity of the man who is to manage the new plant, the architect and engineer, the process engineer, the machine manufacturer, and all other consultants who might make a contribution to a factory scientifically engineering for human engineering, not forgetting the color consultant and the landscape architect. The modus operandi for locating and designing a new plant is pretty well codified; here it is as given by F. N. Manley, director of construction for J & J factories.

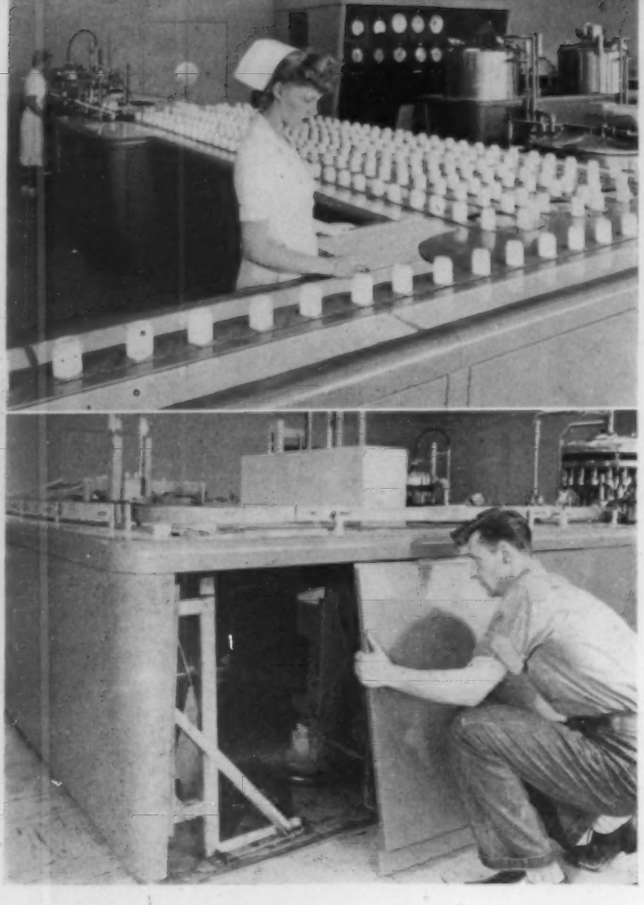
Selecting the Site

First of all in the selection of a site is a general understanding of the kind of plant to be built. It will be a one-story building. The determination is rather positive on this point. It will be out away from congested city areas, away from any "industrial slums." Johnson does not want to operate in industrial slum conditions. It is largely a matter of environment, as said before, and the effort is to get away from prearranged environments, lest management and worker alike be affected.

So the site will tend to be in a country area, with the expectation that workers will drive their own cars to it. It will be a large site, for these same reasons plus some others reasons of cold economics.

The rule as to size is to figure out present square foot requirements, also those seen for 10 and 15 years in the future, then multiply by 6 to get site requirements. This would be much too liberal for a metropolitan site, but not for a country location.

Factors in this size-demand are several: First, it takes



Photos at left: Wm. R. Frutchey. Above Ezra Stoller

The Johnson passion for order and for design extends to the production machinery. Every possible working part is to be enclosed in something colorful and easy to clean, so that the girls on the assembly feel the fitness of the nurses costumes they are given

three and a half acres for a railroad siding with a right-angle turn. Next, it requires one acre to park 100 cars; if a multiple shift is contemplated, more parking space will be required.

Perhaps the most important reason for a large site is flexibility for expansion. The design must be such that the plant can be extended on any of its four sides, so that extensions can be made without the need for reshuffling existing layouts.

And finally, in the Johnson thinking there is nothing prettier or less expensive to maintain than grass. And nothing quite so conducive to contented working as a pleasant, landscaped, parklike setting. Before the worker has even parked his car he has been conditioned to order and beauty.

Then come considerations of market, utilities, transport, labor, and perhaps publicity value if the site can be near a main highway or a main rail line. Then starts the search, and it is likely to be a long one.

Designing the Plant

The concept will rely heavily on the architect to express in the building the note of orderliness and the appeal of esthetics. The plant need not be designed for the most expensive materials (though marble was used for a whole façade in one plant), but it must have that quality which is recognizable in capable architectural design. This compositional expressiveness is not taken lightly by the J & J organization.

The building will be as open as possible in plan and arrangement of processes. Partitioning is to be used only as a last resort. Here again environmental reasons enter into it—the aim is always to clean up a dirty process rather than to isolate it. So minimum partitioning does more than preserve flexibility—it becomes another urge to orderliness and good planning for good housekeeping.

This housekeeping fixation is pressed heavily on the designers. All materials in the building must constantly remind everyone in the plant that he himself has obligations to the standards bestowed on his workshop and the dignity given his job. Materials and surfaces must not only be easy for him to maintain; they must also be a demand on his sense of responsibility. As a matter of fact there is cold-cash reasoning here: maintenance is left to individual workers wherever possible. Cleaning up is not a separate payroll item. It does not mean that everything is sterile, gleaming white; on the contrary, pleasant, comfortable color schemes are expected to add to the general atmosphere.

The same strain is put upon designers of process equipment. The general rule is to enclose everything possible in clean, colorful coverings, hiding all possible working parts and oily bearings. Usually an industrial designer is retained to modify machine designs and work out color schemes, all to the end that girls can operate them safely and simply, without soiling the nurses' uniforms that management provides for them.

Column spacing will be fairly wide, for flexibility. The column pattern will be square if possible, so that it does not dictate the direction of machine layouts. There is no standard column spacing, but 35 ft. is fairly common.

The plant definitely will have windows. The first reason is the J & J belief that some daylight is desirable in working light. Psychology provides the second reason. The theory here is that it is normal for the worker to have daylight in daylight hours, this going a little deeper than the usual statement that workers

Wm. R. Frutchey Photo

Above: In the new plants there is no employees' entrance. The workers are welcomed through the reception lobby with as much consideration as, say, the visitors who come for inspection trips. Right: If there is an automatic machine, the plant will have it

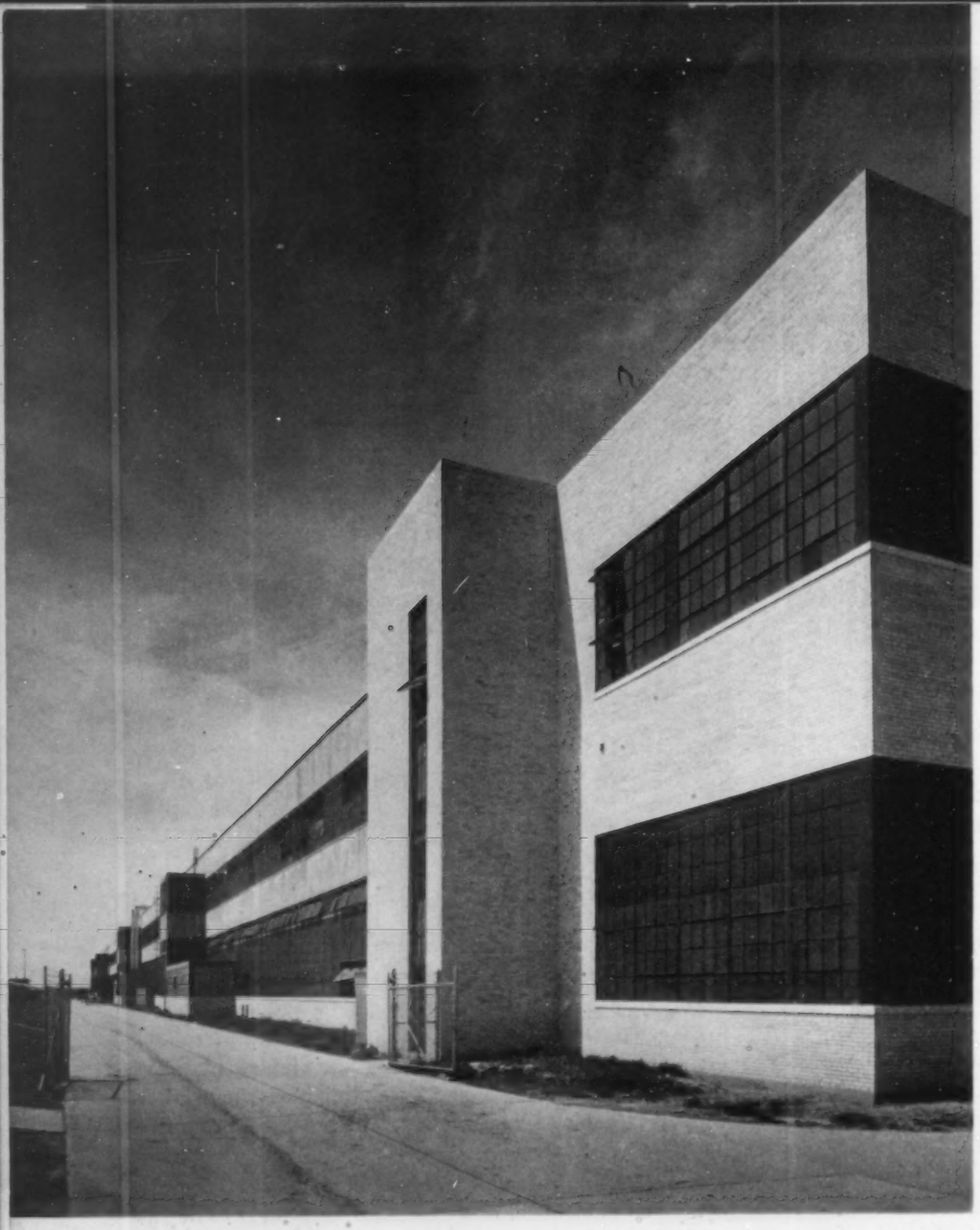
need to feel in touch with the weather and not shut away from nature. Windows are not relied on for ventilation; they are usually fixed double glass, solar glass if required.

Air conditioning will be extensively used. Acoustic materials will frequently be used. Lighting will be the best that can be engineered. The greatest attention will be given to the floors—they "have never found one good enough," and they have tried them all. They like a concrete floor, provided it is laid smooth enough; if a glasslike surface can be had, the floor will be very comfortable. The floor will be as light in color as possible.

Employees will be given many "extras." They will not be luxurious or expensive, and all will contribute to the welfare that is practically a religious fervor here. There will be good rest rooms, and a lounge for card games or table tennis. There will probably be a speaker system for music, for employees' functions, and for training or corrective purposes. There is a story, for example of this last, that broken glass plagued one plant manager to the point of distraction. Finally a personnel expert got the employees to stage some playlets over the plant speaker system. The skits ridiculed the worker who was unable to handle glass. The breakage promptly dropped by 85 per cent.

And finally, there probably will *not* be a separate employee's entrance. Employees are presumed to be "as good as" the management personnel or the visitors who are so frequently brought to J & J plants. Workers come in through the front door, through the handsome lobby, past all the display material. What better way to add dignity to the worker's job? Perhaps this idea, more than any other, portrays the Johnson theories of plant management and factory design.

The J & J factory will always be a one-story building, in the center of a large plant, expansible in any of the four directions



MAMMOTH

Chevrolet-Flint Assembly Plant, Flint, Michigan

Chevrolet-Flint Division, General Motors Corporation

Assembly plant consists of Office Building (across-page, top), Main Assembly Building (larger views), Customers' Delivery Building (below), Car Loading Building, Shipping Building, Boiler House, Pump House, Acetylene Building, Car Storage Yards and Test Track

Hedrich-Blessing Photos

AUTOMOBILE FACTORY

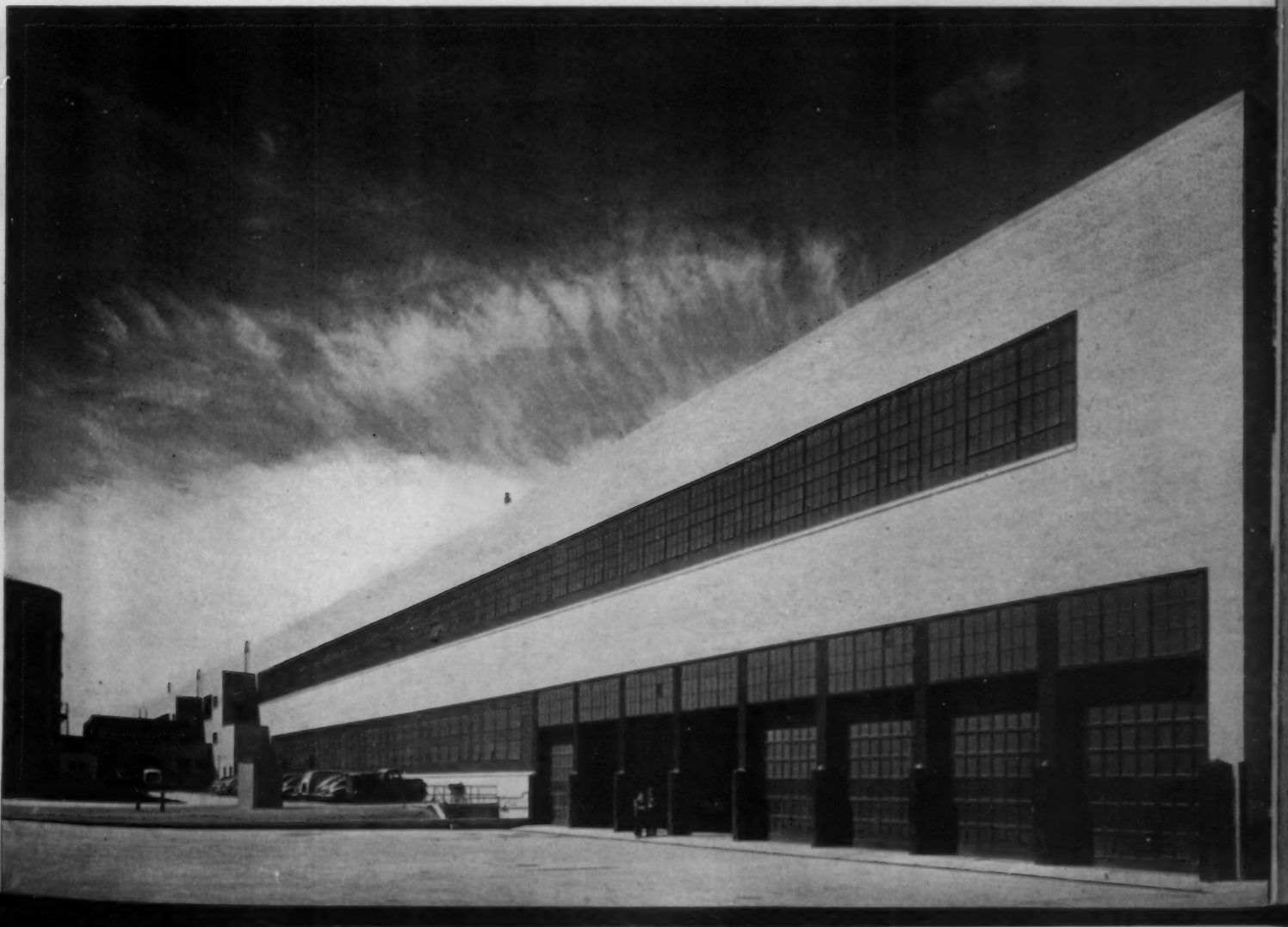
Albert Kahn Associated Architects and Engineers

J. A. Utley, General Contractor

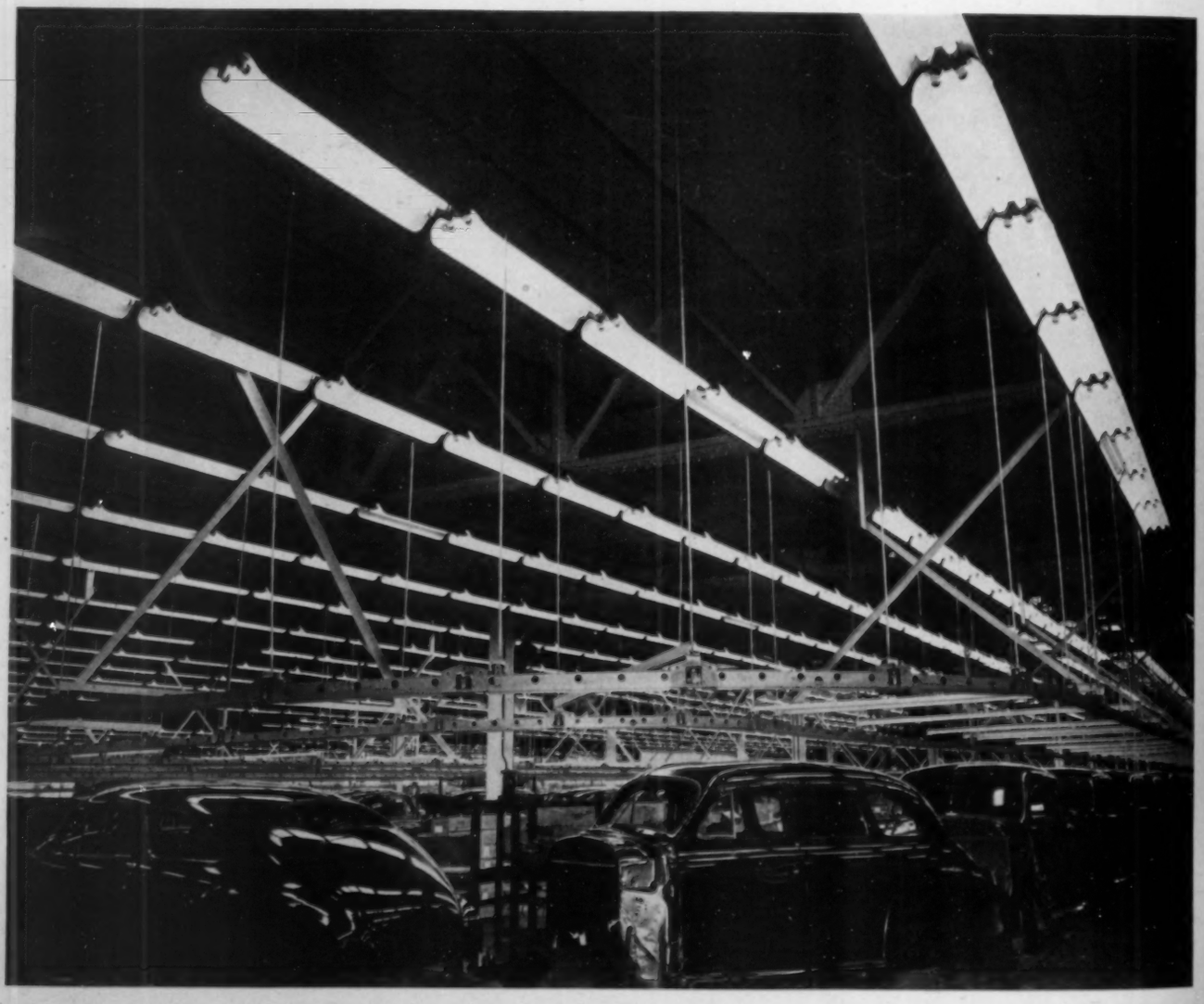
HERE IS A PLANT that belies the pessimistic prediction of a couple of years ago that the war had left too many great factory buildings, that no more would be needed for years. The automobile industry needed production facilities, and it is not in the habit of building its assembly lines in converted hand-me-down plants.

This is really a group of buildings, even including separate buildings for loading finished cars, all of which have the Kahn stamp on them, that long flowing appearance that makes modern architecture really impressive. It will produce 60 cars and 20 trucks an hour, in something over a million and a quarter square feet.

The Assembly Building, the main one, is of structural steel frame, two stories and partial basement. Second floor is of concrete on steel beams. Roof has steel trusses, steel purlins and is protected with cement tile



Main reception room and an executive's suite in the Office Building section



Hedrich-Blessing Photos

Fisher Body shares the main building with Chevrolet, taking 429,000 sq. ft. of a total area in this building of 1,100,000. The two divisions have their own departments, even including separate employee facilities, until bodies meet chassis for assembly

roofing. Enclosing walls are of concrete, brick, gunite, with steel sash. Interior walls are usually brick. The column spacing is generally 50 by 50 ft., with one 50 by 60 ft. bay running the length of the building. Clearances are 16 ft. on the first floor, and 14 on the second. In railroad bays and areas where the second floor has been omitted the clear height is 37 ft.

Employee Facilities

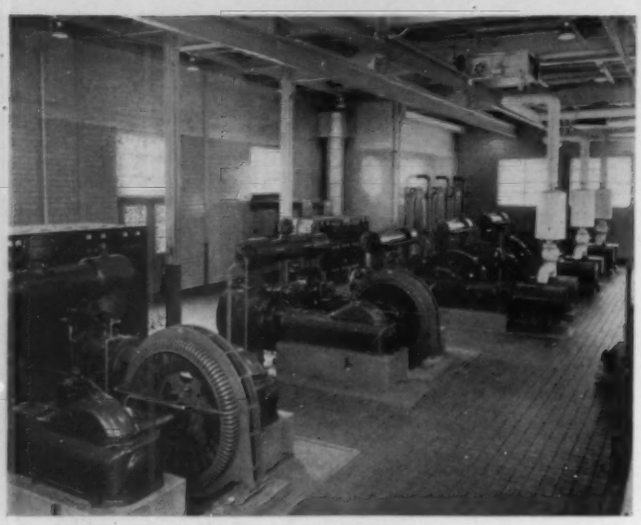
Complete facilities have been provided, in both the Chevrolet and Fisher areas, for handling, preparing and serving food in basement cafeterias.

Locker rooms, following the now-familiar Kahn system, are located off the main basement corridor. In this scheme workers enter via basement corridors which take them directly to their stations with a minimum of lost time and confusion. Locker rooms have wash fountains, dressing and shower rooms and toilet facilities. Rooms have glazed hollow tile walls, ground finished floor and base.

In the Chevrolet section, first aid and personnel sections are combined and located in the basement area. First aid includes examination rooms, X-ray, operating, physio-therapy treatment, ward and waiting rooms. Similar facilities are provided in the Fisher section; here they are on the first floor.

Employee parking area, comprising a quarter million square feet, has black top paving and flood lighting. Since the assembly building houses both Chevrolet and Fisher divisions, parking facilities were placed for

The main production line has a two-story bay with 60-ft. span. In general body manufacture is a second-floor operation, in an assembly line which meets main production line at point where car is ready for its body. Small parts also feed downward from second floor



What looks like a small-city power house is the compressor room

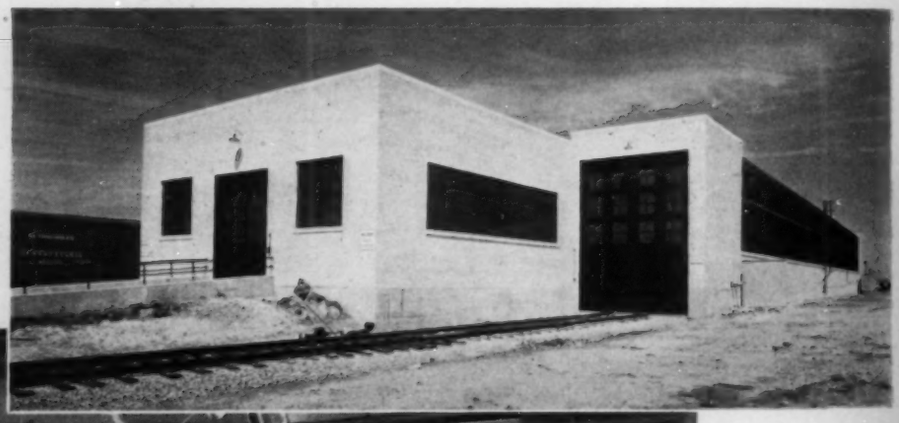
their employees at north and south sides respectively. Workers enter these sections through a control house, thence through tunnels to the basement facilities.

HEATING AND VENTILATING

The various buildings are heated by different systems. There is a separate power house with three 60,000 lb. per hour boilers operating at 175 lb. pressure. A 12-in. high-pressure main serves boiler house equipment and building requirements through a tunnel.

The assembly building is heated generally by vertical type unit heaters with blower type units at the doors for quick recovery, all operating at 30 lb. pressure. Basement employees' areas are heated by a system of forced air. The office building is heated by convector radiators in wall-hung cabinets, supplied by a system of forced hot water. Water temperature is controlled by a combination of outdoor bulb and indoor bulb to maintain a constant relation between water supplied to radiators and outside temperature. There is also a zone system in the hot water converters. All condensate from

The Car Loading Building handles only part of the shipping; there is a separate building for loading cars onto trucks, and a third for customers' delivery, where accessories are installed on cars which are to be driven away



various heating systems, involving high, medium and low pressure supplies, is returned to the boiler house via the tunnel.

The shipping building is heated separately, with a direct fired hot air unit complete with oil burner, fans, and controls. From this unit supply ducts are run overhead to large doors and working areas.

Various types of ventilating and air conditioning systems are used in the several buildings and areas. The cafeteria in the office building is air conditioned in hot weather, has tempered air supply in winter. Rest of the office building is designed for air conditioning to be supplied later. Employee areas have ventilating systems, and air conditioning may later be installed for cafeteria and hospital areas.

Manufacturing areas such as motor rooms, paint department, pipe tunnel, and so on, were supplied with 100 per cent of outside fresh air, giving these areas one air change every three minutes. Exhaust units remove any hazardous fumes, picking them up near the floor or the ceiling, depending on the density of the gases.

Each of these three boilers, coal fired, has a capacity of 60,000 lb. of steam per hour

The Boiler House, connected to other buildings by tunnel, supplies steam at 175 lb., reduced as required to "medium" and "low" pressure for operating equipment and heating

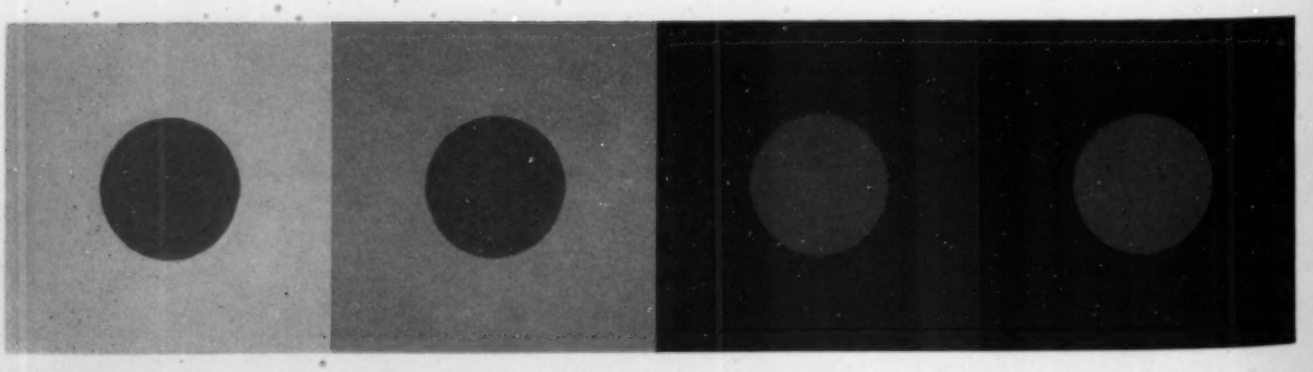
Hedrich-Blessing Photos

FUNCTIONAL COLOR IN

IN A RECENT article, a member of an able firm of architects who have designed many outstanding industrial buildings in the United States referred to the use of planned color in manufacturing plants as being under study by his organization, to be further employed if results of the study were encouraging. A professional colorist views this statement as a surgeon would the assertion that anesthesia is still on trial.

Sufficient case histories, and surveys by government and by private associations of manufacturers now exist to prove not only that properly engineered functional color does accomplish desirable results, but also that it is an essential element not to be disregarded in the planning of any building where tasks of concentrated seeing are required. Functional color has had, and has before it, a hard fight to win due recognition in the architect's mind, but it will ultimately prevail as did the practice of acoustic correction. One remembers the day when architects thought they could take acoustics or let them alone, but today acoustic materials are specified without quibble wherever they are needed or desirable.

Yet eyesight is obviously more necessary than hearing to human well-being. Eyes are responsible for from 75 to 90 per cent of the usefulness of human actions, and 87 per cent of all sense impressions are received through them. Conditions that help eyesight help people. Conditions that hinder good sight may affect the whole human organism by causing headaches, dizziness, nausea and indigestion. Even the heart-rate remains more normal under good conditions of seeing. In the writer's experience, a factory reported that girls engaged in sorting and inspecting small, glistening metal parts upon a moving belt were frequently nauseated and obliged to take time out to rest. Polaroid glasses to cancel specular reflections, and stopping the belt at intervals of time, furnished the cure and increased production. Since this seeing problem was due more to the effects of light than of color, the point may be made here that light and color are Siamese twins. Neither can exist without the other. Good seeing requires that



INDUSTRIAL BUILDINGS

By Julian Ellsworth Garnsey,

Colorist

both be skillfully designed. In this paper it will be assumed that lighting problems, too complicated to be treated here, have been correctly solved.

What procedure, then, shall an architect follow in his endeavor to specify color which promotes good seeing? To begin with, he should take note of some peculiarities of vision which are fundamental to the solving of his problems. These are inherent in the construction of the human eye and in its system of transmitting visual impressions to the brain. In spite of its marvelous accuracy and adaptability as an instrument of seeing, the eye enjoys tolerances in its operations which would never be allowed in a man-made tool of precision. Principal among these which should be taken into account by the architect are:

1. Simultaneous Contrast

The eye sees no color within its field of vision as a fixed quantity, but only as modified by the simultaneous perception of adjacent colors. The color seen is modified as to hue, value and intensity. As to hue: each color seen will tend to cast a tinge of its *complementary* color upon the adjacent colors. As to value: dark colors will make adjacent colors appear lighter and vice versa. As to intensity: strong colors will weaken adjacent colors.

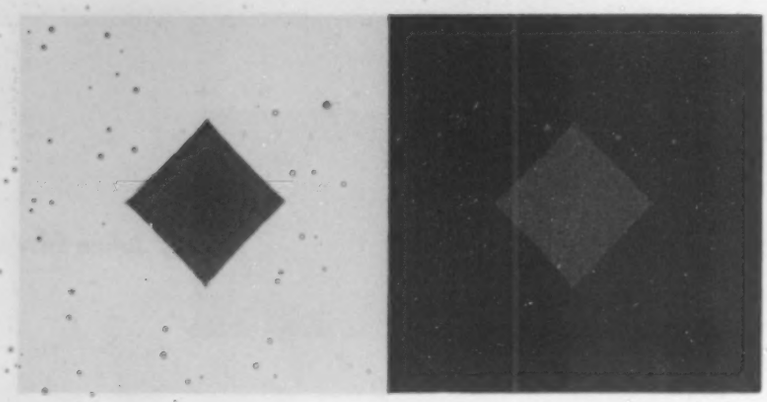
This phenomenon of vision is perhaps the one most frequently overlooked in architectural practice. Materials which are to be placed contiguously in a building are often chosen separately without regard to their mutual interaction, sometimes with surprising final results. In industrial plants the phenomenon may be advantageously used to emphasize work in hand, to separate machines from their background and to enliven a general color scheme for psychological effect upon the workers. For instance, a tan background of low reflectance will strengthen the general bluish hue of steel castings and accentuate their forms for quicker handling while copper or brass objects, generally toward orange in hue, will be easiest seen against gray blue-green. Rows of medium green machines will reveal their contours, if that be desired, against light pinkish gray. On the walls, pale gray tints may be "forced" into apparent color, without losing their necessary high reflectance, by colored painted bands, columns or whatever, in slightly richer complementary hues.

2. After-Image

The eye tires quickly of any color upon which it is focussed and tends to record, immediately afterward, the complement of that color. If one gazes intently at an orange spot and then looks quickly at white paper, an after-image of pale blue will appear. One of three effects will result from this phenomenon of vision: the second color viewed may be enhanced by the after-image remaining from the first color (as red seen after green), it may be weakened (as pink seen after red) or

Simultaneous Contrast of Value

All four circles are the same value of gray. The effect of contrasts, seen so vividly in black and white, is also a phenomenon of colors. Dark colors similarly will make adjacent colors appear lighter



it may be influenced toward a different but not necessarily unpleasant color (as yellow which is seen after orange).

The effect first mentioned was used at the New York World's Fair where a "Golden Circle" was the first group of buildings seen by the visitor who, arriving by the Long Island Railroad, traversed a long vaulted station en route from train to the Fair turnstiles. To prepare the visitor's eyes to see gold, and yet more gold, the strip windows of the station were washed over with a blue-violet translucent glaze. By the time he had walked through the station the visitor was visually weary of violet and ready to see yellow on any surface which next met his eye.

The second effect mentioned above, the weakening of the second color, is one to be avoided in planning color, and the third, the changing, must be estimated for its probable good or bad result.

Application to industrial work will depend upon the answer to the question; What effect will after-image produce upon the particular problem under discussion? Will a warm or cool after-image be desirable or not? For instance, if a large interior should look cool and spacious; a strong orange in the vestibule to that space will help accomplish the effect. On one occasion a surgeon asked the writer to provide a wainscot in his operating room with a color which should complement the color of fully coagulated blood in order that the surgeon's vision might be relieved and refreshed as he looked up from his work. The blood color turned out to be, not the rich warm red of fresh blood, but a dark purplish red, to which the complement is warm gray green, and the incident underscored the point that, in color, nothing can be taken for granted but must be exactly defined.

At times, no hue at all will be the right solution. For example, workers upon multi-colored artificial flowers should be able to rest their eyes upon a darkish neutral gray, having no hue stimulation, and should find somewhere in the distance a soft blue field which relaxes the close accommodation required for their work.

3. Warm and Cool Colors

Everyone has noticed that colors containing a predominance of red feel warm, that those containing much blue feel cool, and that the former seem nearer, the latter farther away than their true distance from the eye. Red-orange in strong intensity advances most, and blue in light value and weak intensity recedes farthest. Perhaps few people have also observed that only yellow and purple appear to hold their actual position in space. This phenomenon holds true, not only for pure hues but also for delicate relationships in tints, shades and tones. For example, a long narrow room may be visually shortened so that the distance from work-bench to locker-room seems less than it really is by painting the end walls in a dark value of an advancing color like burnt orange or maroon. Conversely, small rooms may be given greater apparent dimensions, so that personnel will not feel crowded, by the use of a light tint of a cool color — pale turquoise, aquamarine, leaf green — for walls and perhaps the ceiling.

Moreover, illusions of a higher and lower temperature may be created by the same means. Recently the writer was asked to correct, so far as color can, the oppressive effects of New York summer heat in a banking room where air conditioning, because of structural limitations, could not be installed. The simple solution of changing the existing tan color-scheme to pale gray-green walls, white ceiling and enameled white columns was voted a success by the bank's personnel. As a by-product, the many young ladies employed there looked prettier against the new background and the colorist took credit for this happy, unplanned result.

Simultaneous Contrast of Hues

The green diamonds are printed in the same color. Each background casts a tinge of its complement upon the diamond within it. Yellow induces its complement, violet, which neutralizes and darkens the green. Blue induces orange, which lightens and yellows the green

PSYCHOLOGICAL ASSOCIATIONS

In addition to the visual phenomena noted above, the architect will want to give attention to certain psychological associations of colors which are not visual but mental. In hospitals, therapeutic color is now standard practice, and the same principles which help to cure sick persons may be used to influence healthy workers. Moving around the spectrum we note that yellow, the color of sunlight, brings good cheer; green has little effect upon human emotions; blue is definitely calming; purple is depressing; red excites to courageous endeavor; and orange is the most powerful stimulant of all. Hues occurring between the six hues named, and variations in values and intensities, furnish material for inducing any psychological reaction desired.

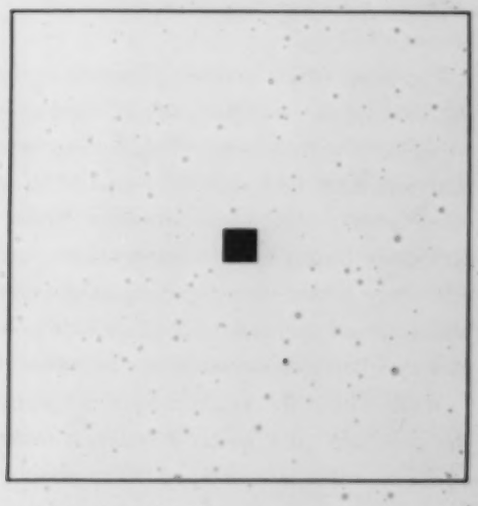
It might be well, in this connection, to clear up the question frequently asked as to how many colors are available in this world. The fact is that colors are far from infinite in number. Theoretically, some 150 hues are discernible by the eye in the spectrum of sunlight. Multiplied by 10 for variations of value in each hue and again by 10 for variations in intensity at each value level, the figure of 15,000 possible colors is reached. However, in practice, a total of 1000 colors is probably the maximum required by any architect. Prepared systems of color chips range from 400 in number, too few to afford adequate choice, to about 1000, which are sufficient for any architect. One of the excellent color systems now available should be part of the equipment in every office. In addition, a dozen or more standardized systems for industrial painting are available from large manufacturers of paint. These have been skillfully designed to strike a general compromise between the solutions of all the problems found in industry, and are a great advance over the dull color schemes to be found in many plants operating today. Unfortunately, since they strive for a compromise, each differs from the others in hues selected and in number of colors. The timid architect will not go far wrong in using one of the systems, though he may miss complete solutions of all his problems.

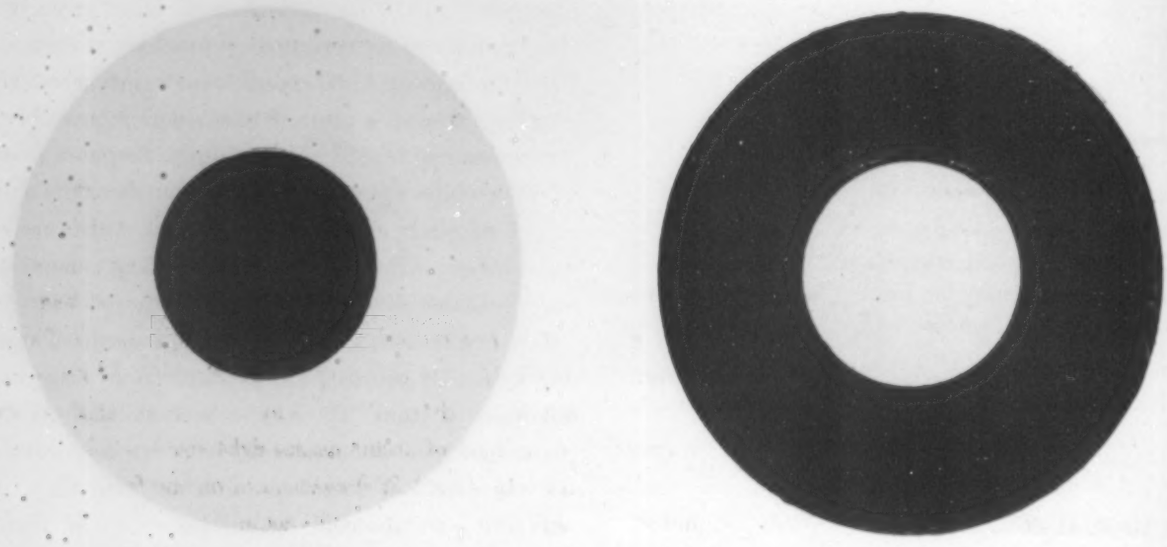
Returning to the industrial plant, we pick up the matter of choosing colors for their psychological effect. The architect is most interested in the colors which he shall specify for ceilings, walls and floors. Again a bit of theory is necessary before we proceed to the specifications, and again reference must be made to the mechanics of seeing, for the architect's thinking upon which his decisions will be based must work outward from the man at the machine, through the man's immediate surroundings, to the surfaces farthest away.

The first consideration is eye-comfort at the machine. The guiding principles here are: (1) brightness contrasts shall be greatest within the confines of the work in

After-image

Look intensely at the red square below for ten or fifteen seconds. Then shift the gaze quickly to the black dot at the right. The resultant light blue-green square is the visual complement of the red square, induced by after-image





Advancing and Retreating Colors

On each disk the yellow appears farther forward than the blue

hand; (2) brightness contrast shall then be less between work in hand and its background; (3) that no contrasts farther away shall be permitted to interfere with the first two relationships. In other terms, brilliant illumination upon the object in work is required, slightly less upon the background against which the object is seen, and successive small contrasts against the floor, walls or other surfaces within view. Since light and color go hand in hand, color contributes to the overall effect of brightness contrast, though illumination is the dominant factor. It is the lightness or darkness of color — that is, its value — which assists or prevents the establishment of correct contrasts in brightness. For prolonged concentration in seeing, brightness ratios between task and surroundings should be smaller than 5 to 1, ratios greater than 10 to 1 should be prevented if possible, and ratios in the region of 100 to 1 should not be contemplated.

The floor, which is often glimpsed beyond the working area of the machine, should obviously be light in value in order to minimize brightness contrast. The fact that less light falls upon the floor than upon the machine permits the specification of lighter colors than ordinarily thought to be appropriate, and such colors encourage better house-keeping. The color of the floor will approach neutral as a concession to maintenance, and as a common denominator between other colors.

Walls within the visual field of the worker will follow the principles of brightness contrast mentioned above, so far as value is concerned. They should be of such a value, taking into account their distance, height, orientation and illumination, that slight brightness contrast between them and the machines is maintained. Yet a conflict arises from the fact that as much reflectance of light as possible from the upper part of walls is desirable, within the limit of glare. In some cases of lofty interiors, upper parts of walls may well be white and lower parts in color, but no general rule can be stated. Hue will be determined by the psychological effects desired.

Dados are of great value for industrial plants, though they may be thought outmoded elsewhere. Many a problem of good seeing for the worker can be solved by appropriate dado color as background and as rest area for the eye. And speaking of rest areas, one should make the point that no hue in itself is "easiest on the eyes." Visual comfort comes from properly balanced brightness contrasts, not from any particular hue. Relative values and intensities are the governing factors.

Ceilings, because they are usually situated above the horizontal field of vision and because they usually should reflect all possible light from the sky or interior sources, should be handled differently from any other surface. In most cases they should be white, and should be kept white by repainting at reasonable intervals. However, care should be taken that a bright ceiling does not become a source of glare. If the visual field of the worker be considered to extend vertically about 120° — 60° above and below eye-level — the possibility of encountering glare may be easily calculated.

ESTHETIC CONSIDERATIONS

While the foregoing discussion has considered only the functional aspects of color, esthetic considerations are not to be dismissed. No law of nature or man requires that human activities should be conducted in an atmosphere of depressing color. On the contrary, it has been proven that bright, cheerful, attractive color pays dividends in better tempers throughout an organization. If the average home were to present the dull, forlorn color scheme of many a work-place, a further rise in the rate of American divorces would be confidently expected. This is not to imply that bizarre color-schemes, tossed about at random are to be encouraged. Workers would be the first to apply pungent epithets to them. But simple, appropriate, dignified schemes, as colorful as may be permitted by requirements of good seeing conditions, influence workers whether they are entirely aware of their environment or not. For example, a newspaper press-room in previous days was a horrible example of dingy, unclean, ill-lighted working conditions. The boldest departure from that precedent has recently been accomplished for a great newspaper in the Pacific Northwest, where light beige walls, pale lemon-white ceiling and vermilion columns enclose that magnificent piece of machinery, a 16-unit press, enameled in deep ultramarine blue. An enlightened architect and a generous client gave encouragement to the colorist in planning a scheme which is guaranteed to lift the spirits of men whose job is, at best, noisy and wearisome. Not many industrial interiors would support such a brilliant color-scheme, but mention of it may reassure the faint-hearted.

In any case, rest and locker rooms, cafeterias, lobbies, offices and clerical spaces will permit more interesting, exciting schemes than are now customary. Women's restrooms call for soft peach, rose, soft yellow or pale salmon on walls and ceiling, warm beige carpet and soft lighting. News of such accommodations for personnel gets around among the working population in the vicinity and has been known to attract workers from other plants. The cafeteria may be either warm or cool in hue, depending upon its orientation, and may have peach, rose, yellow or light soft green on its walls, white tinted with the wall color on its ceiling, and a deep value of the same in the floor covering, but no pale blue, violet mauve, nor even white, if management desires personnel to eat heartily.

Private offices of executives present the frequently observed problem of man-attached-to-desk. Moving from the old plant to the new, the majority of executives insist on bringing along the familiar mahogany or dark walnut desk, the matching set of chairs and often the ancient rug. To the design of decent seeing conditions these well-beloved but visually unfortunate objects are serious handicaps. They violate exactly the principles which govern good seeing for the machine operator out in the shop. Many a company officer who attributes his headaches and bad temper to acid indigestion is the victim of brightness contrasts between white paper and dark desk or carpet. If he can be persuaded to buy a new desk or to have the old one refinished to a reflectance of perhaps 25 per cent, something can be done with the rest of the room. A white ceiling, walls of not lower than 50 per cent reflectance and a correct positioning of architectural light sources (above and to the left of his left shoulder, not on the front edge of the desk) may result in his acquiring a sunny disposition and radiating good cheer.

The main entrance lobby, to which the public is admitted should obviously exemplify in color, as in displays, the quality and character of the firm it represents. Yet one sees frivolous color standing for integrity and, more often, dull stupid color standing for a bright, lively, up-to-date organization. To strike exactly the right note is none too easy but is worth attempting. Fortunately, the necessity of observing rules for good seeing is not present, since people spend only a few moments there. Drama, free expression, imagination and fancy can be given rein. One can imagine the lobby to a factory making brake-shoes treated in stainless steel and deep blue under the cold illumination of daylight fluorescents, the displays of objects manufactured lit by pale yellow light from filtered sources. Or one can fancy the lobby to a plant where lighting fixtures are made as a pure white dome upon which the colored decoration would come from the intermingling of colored lights cast upward through the apertures of the lighting fixtures on display, arranged for pattern. In a word, the visitor's first impression is important, whether he is conscious of its impact or not, and the lobby should be designed to influence him favorably toward the firm upon whom he calls as buyer or as seller. Color will be an integral part of the attack upon his emotions.

As the visitor progresses from entrance lobby through executive offices to the last machine in the production line, he should encounter a coordinated series of color impressions, each of which is calculated to perform an appropriate function for easy, comfortable seeing, for good cheer and even for esthetic pleasure. Toward the accomplishment of these optimum conditions the wise architect will bring his influence to bear upon the client.

Happily, both will share in the benefits which result therefrom.

NEW PLANT TO RELIEVE A NATION'S HEADACHES

Factory for the Bayer Company Division, Sterling Drugs, Inc., Trenton, N. J.

The Austin Company, Engineers and Builders

Giant slugs of aspirin cross a 40-ft. overhead from new plant to an older building on belt conveyor enclosed in stainless steel; the older building has been modernized for the tableting and packaging operations

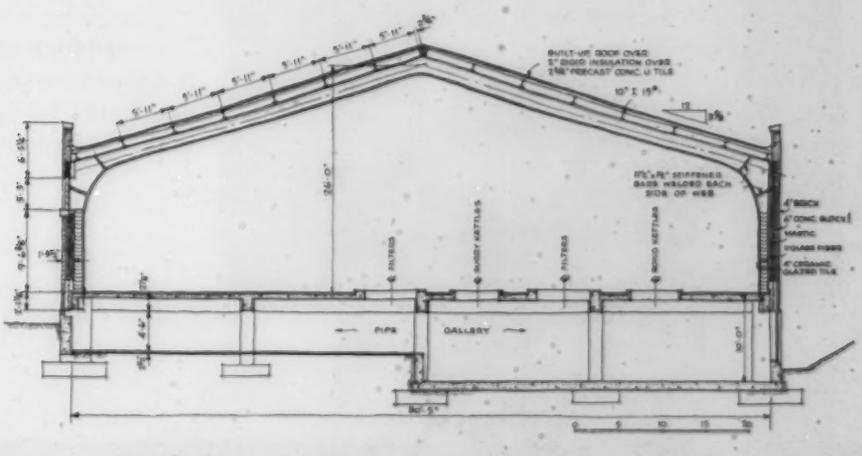
WITH THE ADDITION of this new plant, costing $2,500,000 to build and equip, the Bayer factory has a production capacity equivalent to 60 per cent of current United States consumption of packaged aspirin tablets.

The steel frame structure, faced on the exterior with buff face brick and continuous bands of sash and glass block, has an overall length of 340 ft., and ranges in depth from 170 to more than 200 ft. Receiving and shipping departments and a 280-ft. warehouse extend along the full length of a 300-ft. loading deck.

Manufacture of aspirin powder is carried on in two identical buildings, each of them being arch-type structures 120 ft. long and served by its own air conditioning system. Boiling kettles, filters, slurry kettles and evaporators, in which chemicals are converted into

Photos by The Austin Company

There are two identical areas like this, each with four complete aspirin powder manufacturing lines. Welded rigid frame spans 70 ft.; roof is of precast concrete tile, sidewalls are glazed ceramic tile, acid-resistant tile on floor. Room is air-conditioned, and all wiring is explosion-proof

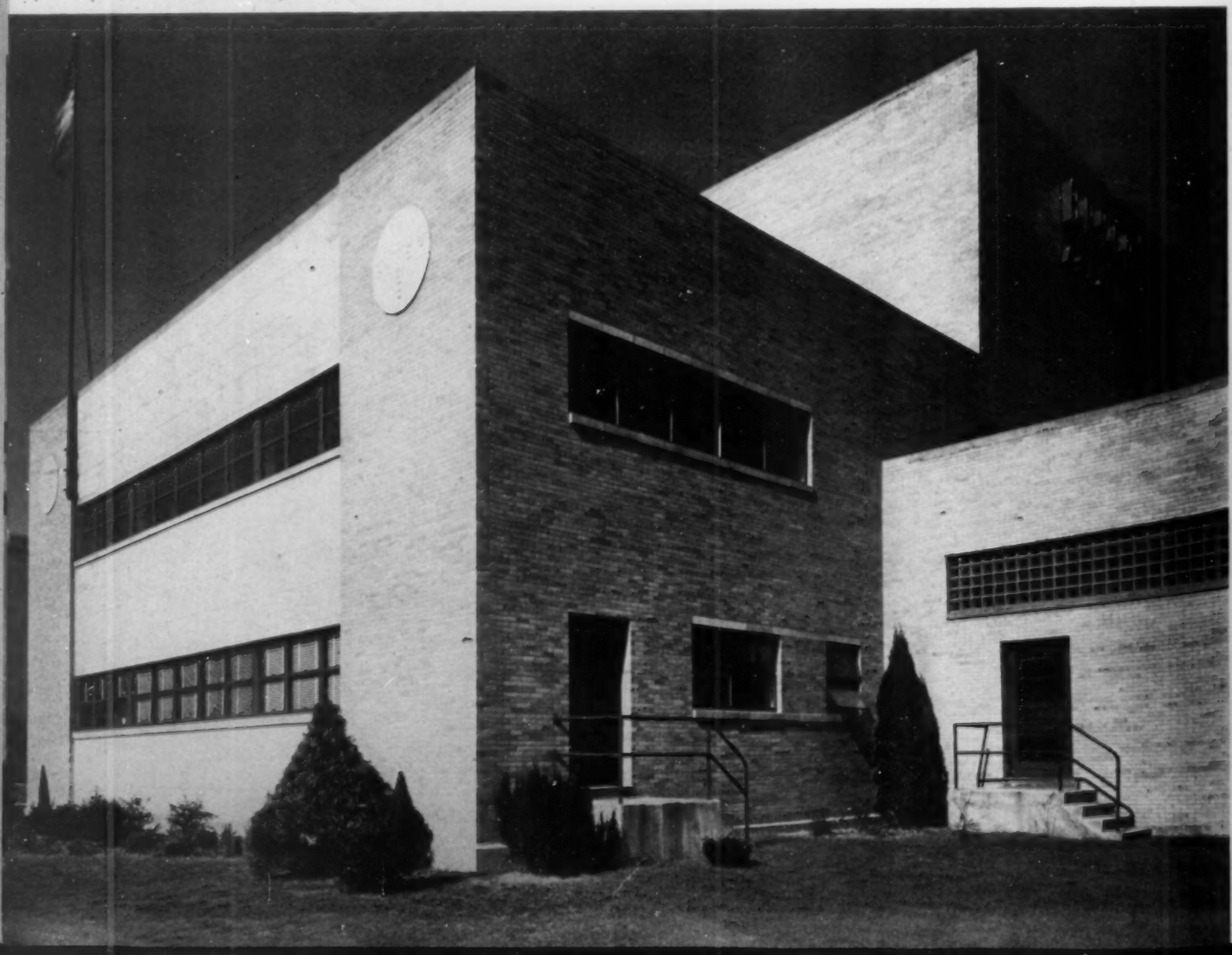


Photos by The Austin Company

aspirin powder, extend through the concrete floor to pipe galleries below, which connect each process unit to the next one in the manufacturing sequence.

A two-story wing, 60 by 203 ft., in the angle formed by the canopied carloading deck and one of the powder manufacturing buildings, serves as headquarters for the chief chemist. Mixing and granulating departments occupy one-half of the building nearest to the powder manufacturing structures, and are served by conveyors which extend across a 65-ft. connecting bridge to the tablet forming and packaging departments.

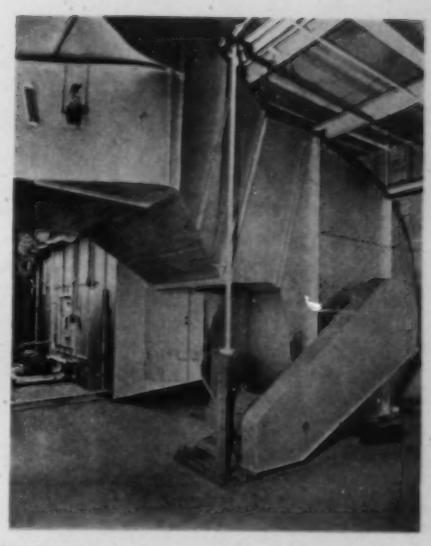
In order to maintain extremely accurate control of temperature and humidity in the various manufacturing departments, the plant has been equipped with seven separate air-conditioning systems. To maintain the required conditions for the powder manufacturing



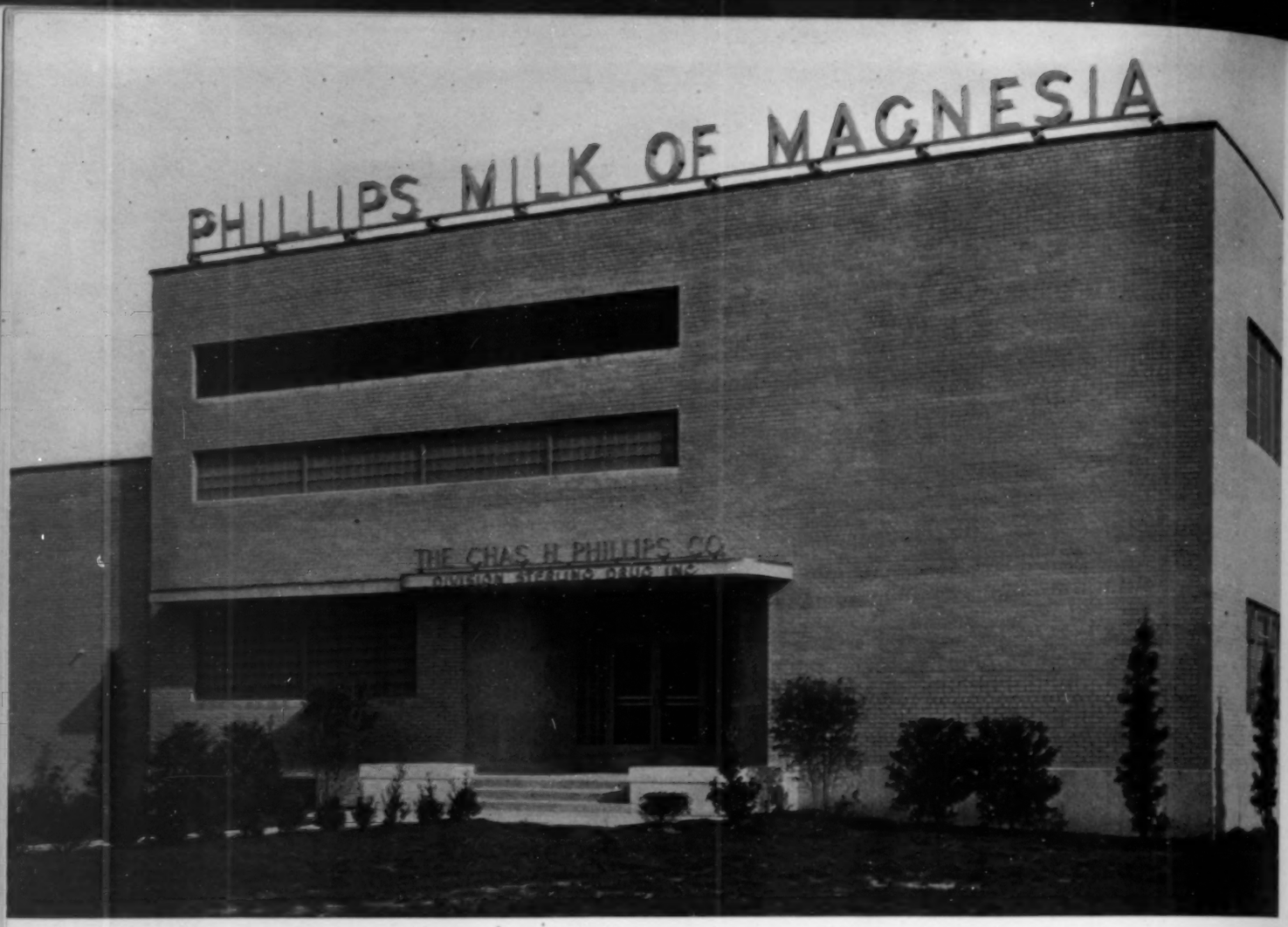
rooms, for instance, the humidity is automatically controlled. The air in these areas is changed completely every 3½ minutes.

The air blanket carries with it the vapors and fumes which are released by the manufacturing process. Sampling detectors are installed at the inlets of the exhaust fans continuously to record the condition of the air leaving the areas.

Vapor-proof fluorescent lighting fixtures have been installed in the powder manufacturing buildings to provide at least 20 foot-candles of intensity at the working level, and an intensity of 40 foot-candles is maintained in the control laboratory. Dust-tight fluorescent units were used in the mixing and granulating departments, and explosion-proof fixtures in the acid recovery building.



Top right: cleanliness seems to be the criterion in this employees' cafeteria, with ceramic tile walls and asphalt tile flooring. Right: fans like this deliver 59,000 cfm. of fresh air through seven separate air conditioning systems. Below left: an intricate pattern of steel work provides four levels for the mixing machines. Below right: a view in the older building as modernized with glass block, fluorescent lighting, air conditioning



NEW PROCESS REQUIRES NEW PLANT

Factory for Chas. H. Phillips Co., Division of Sterling Drug, Inc., Gulfport, Miss.

W. Stuart Thompson and Phelps Barnum, Architects; Guy B. Panero, Engineer

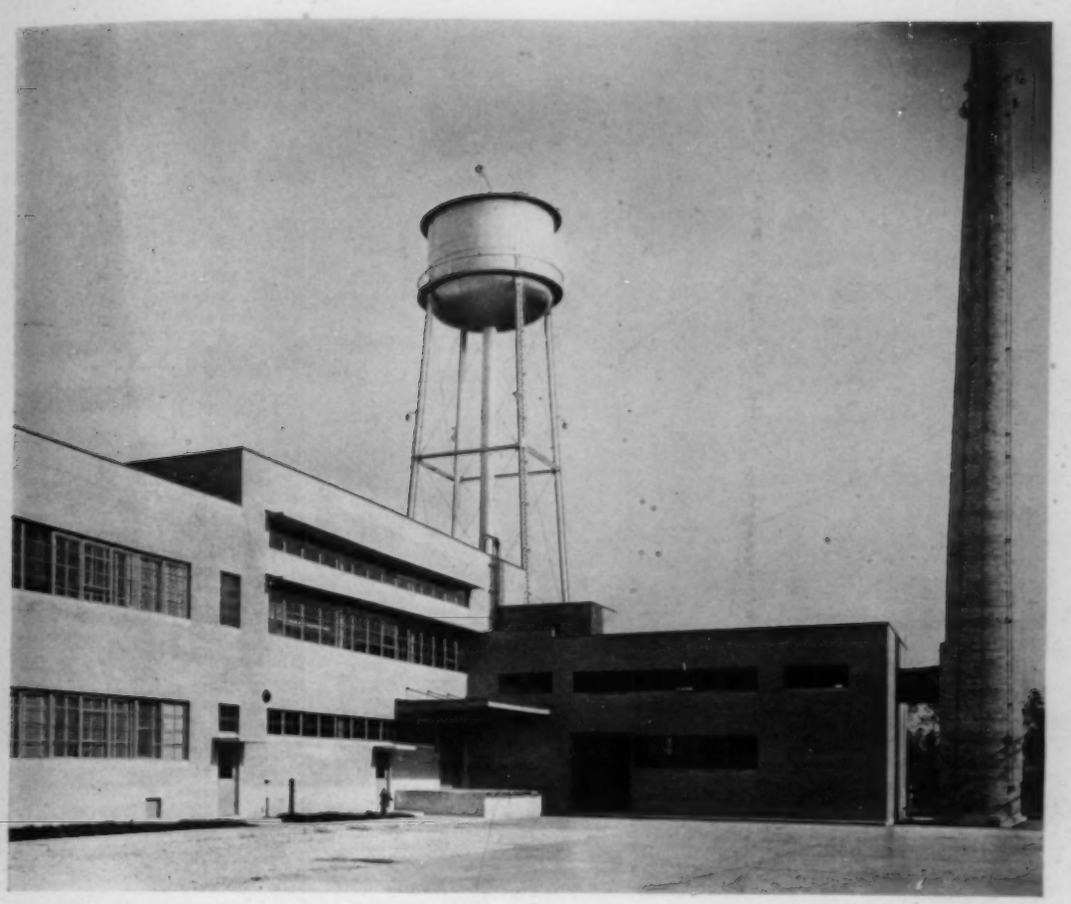
OF BUFF BRICK, steel-frame construction, the building is in general a one-story structure, except for a small two-story portion that contains about two-fifths of the total floor area. In this two-story portion are housed part of the manufacturing equipment, the administrative office, finishing office, receiving office and machine shop.

Primarily the plant was laid out to accommodate a simplified process and equipment which it required. However, it was also necessary to provide space for the specialized bottling and packaging operations. In addition, the building was planned to allow a 35 per cent increase in filter press capacity and also to make room for the future manufacture of toothpaste.

Plant operations are directed from modern second floor offices, which are equipped with acoustical ceilings, asphalt tile floors, recessed fluorescent lighting, and are fully air conditioned.

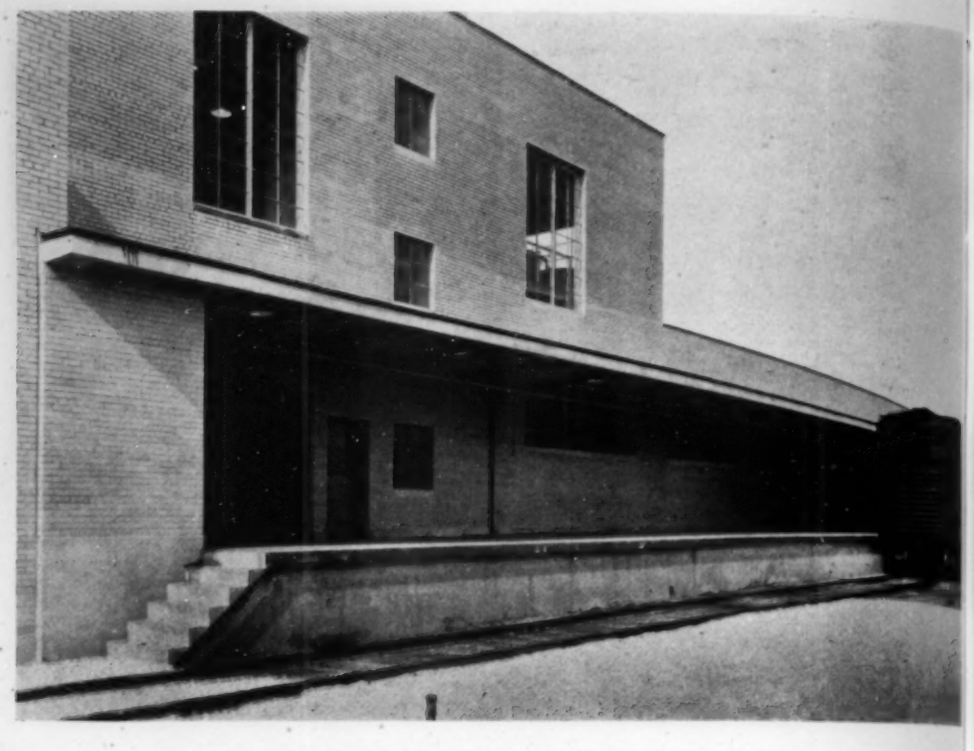
With the exception of storage rooms and a room housing filter presses, the entire plant is air conditioned. The tableting room and the bottling and packaging room have constant humidity as well as air conditioning to keep air clean and to maintain uniform working conditions.

As further insurance against Mississippi's warm weather, employees are provided with air conditioned rest and locker rooms and a combination lunch and recreation room. Daylight is admitted to the main floor, where most of the employees work, through a 120-ft. continuous glass block window panel in the west wall.



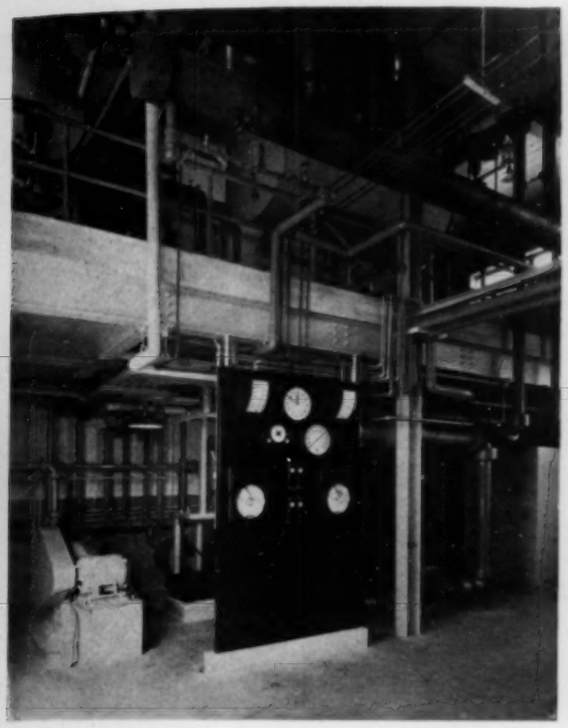
Drix Duryea Photos

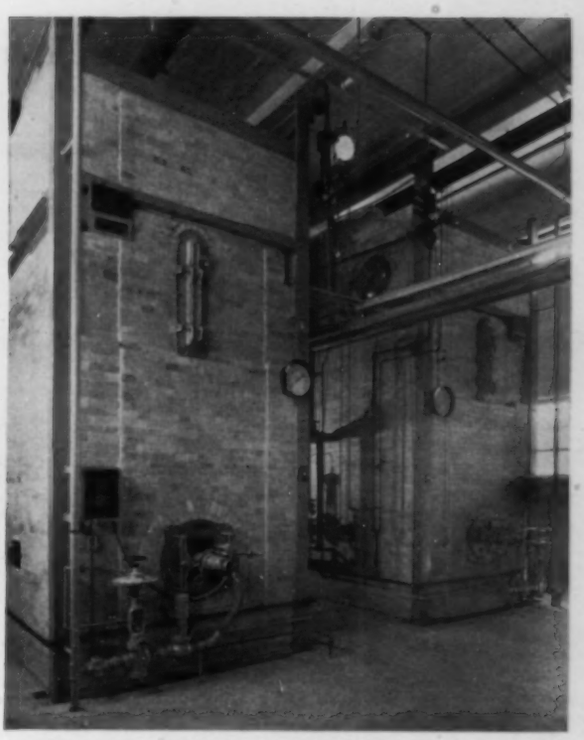
A new process for the manufacture of milk of magnesia, the raison d'être for this new plant, comes to fruition in the capping and packing room, which like the rest of the factory, has complete air conditioning for temperature and humidity control, also to keep the plant free of dust and impurities



This loading platform, one of two identical receiving platforms, is 165 ft. long. The plant is within three miles of the Gulf harbor, from which much of the product is shipped to South American markets

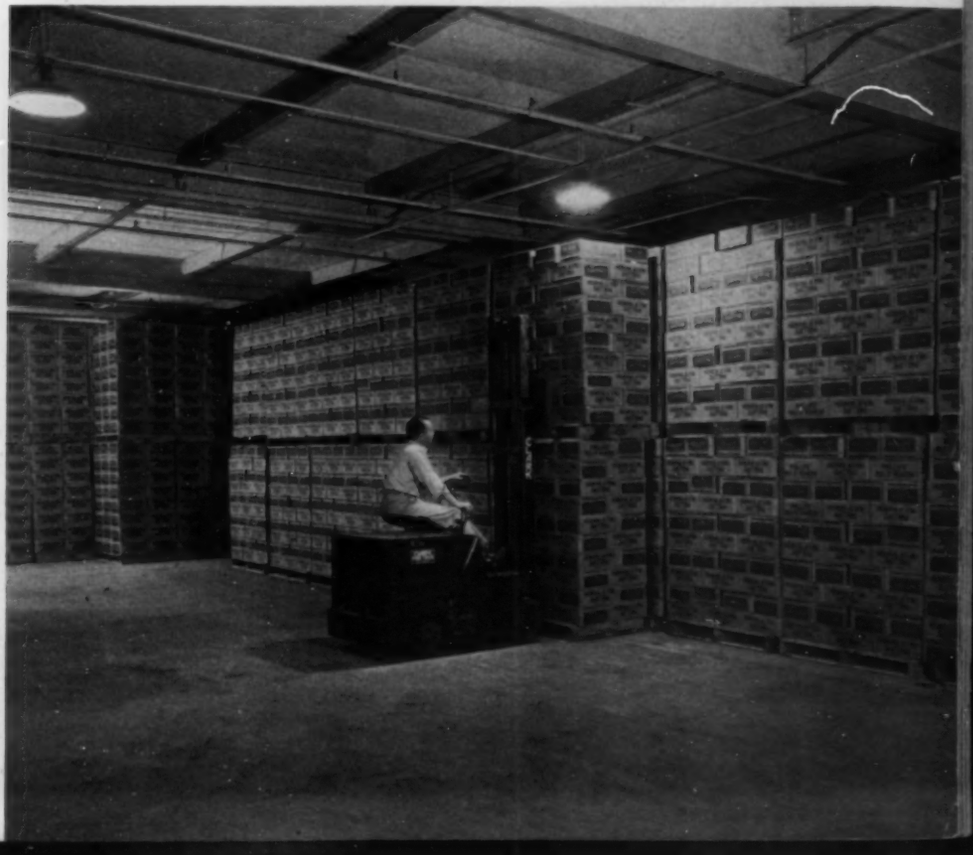
Doors leading from the packaging room to storage are opened and closed by a photo electric cell so as to permit free movement of electrically operated double fork pallet trucks which carry and stack the product. The high-ceilinged storage and shipping room for finished products contains 21,300 sq. ft. and is adjacent to a 165-ft. long covered rail loading platform that will accommodate four freight cars. A 12,000 sq. ft. yard stock room is located adjacent to finished products storage with access to a receiving platform identical with the loading platform. Two other shipping and receiving platforms facilitate shipment by trucks.





Drix Duryea Photos

Above: control panel, piping and boilers which provide heating and process steam. Each boiler is rated at 265 hp. at 100 lb. per sq.in. Below left: a row of tablet making machines for the final step in laboratory cleanliness. Below right: "clean" construction is necessary to afford maximum headroom for a fork-truck type of stacking which saves heavily on floor space



FACTORY WITH A SLOPING FLOOR

New Plant for Square D Company, Los Angeles, Cal.

The Austin Company, Industrial Engineers and Builders

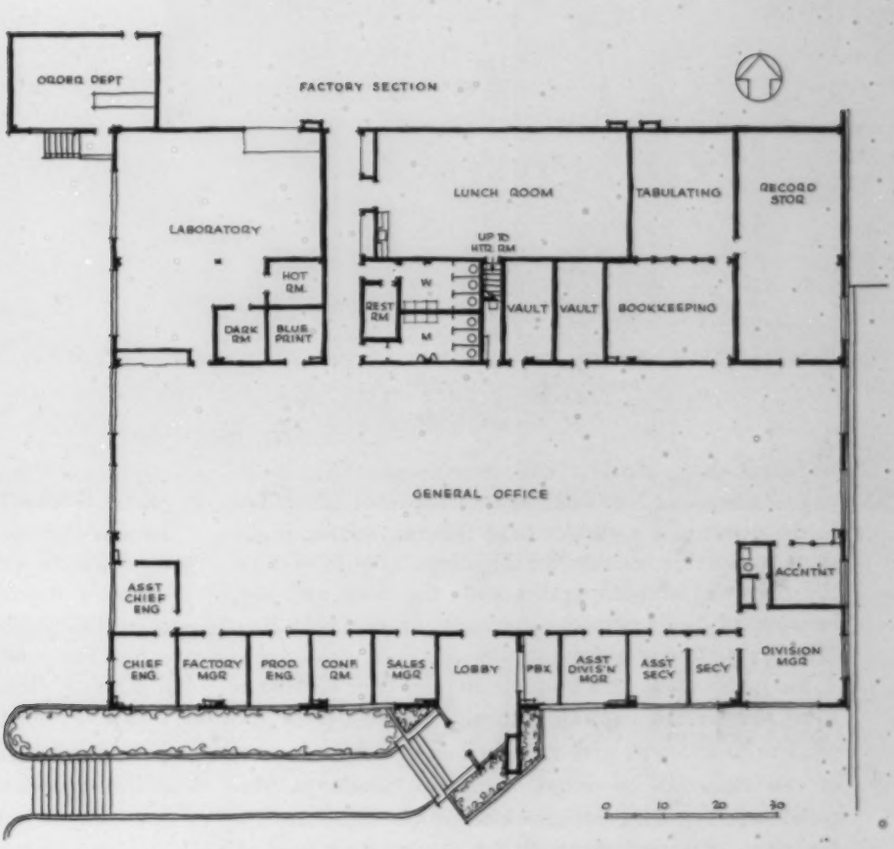
DESIGNED and built to help serve the greatly expanded postwar electrical control equipment requirements of western industry, the Square D Company's new plant is typical of many completed last year in the West.

The building comprises two sections — a production area of 106,708 sq. ft., and a unit of 12,500 sq. ft. for administrative offices.

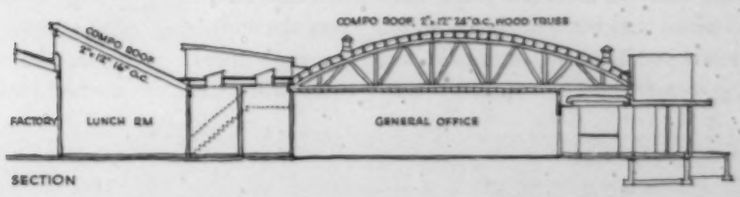
The engineers were confronted with an unusual site, a long narrow plot running north and south, with the rear somewhat wider and of considerably greater elevation than the front. The east wall of the plant is on the property line, while the west wall faces on a 60 ft. street, half of which belongs to Square D and the other 30 ft. to a neighboring manufacturing concern. Each firm granted an easement to the other, so that a 60 ft. street will always remain to serve both organizations.

To prevent excessive cut and fill, the floor level at the rear of the building on the north stands higher than the southern end of the factory area; the floor is carried at a uniform slope in the plant proper from north to south. With truck-delivered raw materials arriving at the rear of the building, the handling operations and production sequence thus run with the floor slope. The floor slopes at 1.11 per cent up, which is not perceptible inside the

Since the approach is from the side, the front entrance takes a 45-degree angle. The canopy extends around south and west sides of the office portion; shade louvers are metal



Central office section, with windows only at the ends, is air conditioned, acoustic treated, fluorescent lighted. Various vaults, storerooms, rest room and laboratory separate offices from the factory section



SECTION

building. At the southern end, provision has been made to prevent water from flowing into the level office floor in the event of a sprinkler head failure. Neither is the slope noticeable outside the building. This is because the driveway slopes parallel with the floor and also because of the sawtooth character of the roof line. Hence, roof line is not perceptible.

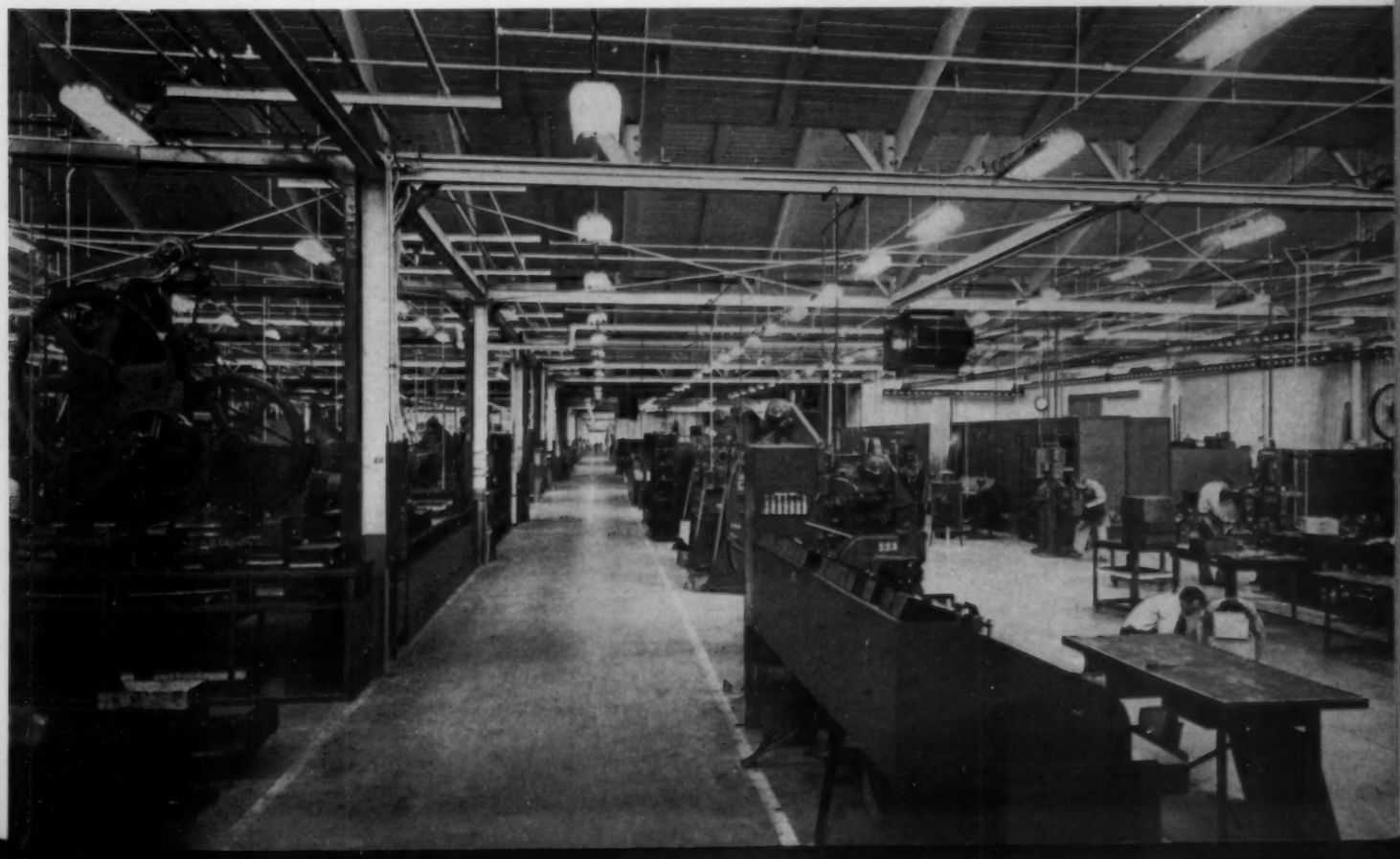
The production area and the sloping floor serving it were planned to capitalize to the fullest degree the efficiencies inherent with straight-line flow from income of raw materials to outgo of finished products. Materials are funneled into various processing channels, therefore, in accordance with the sloping floor level. A crane of five-ton capacity in the receiving bay at the rear of the building, where stock departments are located, facilitates rapid unloading and economical handling of sheet steel and other incoming materials.

The plant was built during a period when the supply of certain construction materials was extremely short, making it necessary to substitute other items whenever required in order to carry through construction as planned. For instance, due to the shortage of form lumber and the few carpenters available, Shotcrete was used for the exterior plant walls. Use of this material not only required, but also made possible, many more re-uses of plywood and other form lumber.

Vertical sawtooth sash in the roof is fixed and has aluminum dividing bars of the puttyless-type. Ventilation is provided by sheet metal ventilators at the ridges. Considerable ventilation is obtained due to the exhaust of the drying ovens. The factory area is heated by direct gas-fired suspension-type unit heaters, which are so arranged that all or any portion of the air can be recirculated. During the summer months these heaters are used for ventilation.

Metal partitions are used for many of the interior office partitions. The office is heated by forced warm air from gas furnaces. Fans and furnaces are located in a room above the two vaults with fireproof walls. This central location is best for efficient operation.

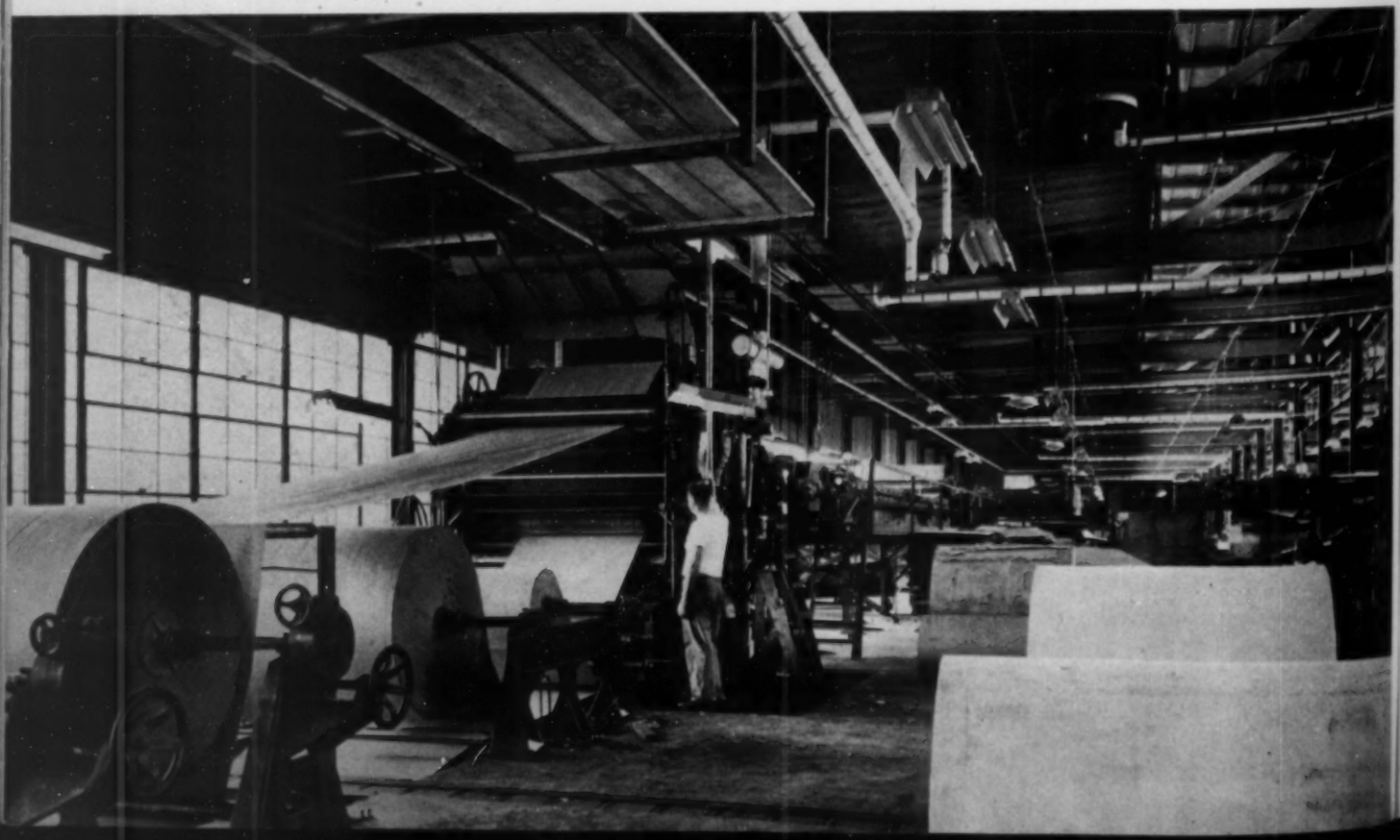
To eliminate much grading, the factory floor was given a mild slope—1.11 per cent—which is really imperceptible. The material flow, however, is arranged so that trucking operations take advantage of the grade



FLEXIBLE FACTORY FOR PAPER BOXES

Plant for The Mengel Company, Fulton, N. Y.

The H. K. Ferguson Company, Industrial Engineers and Builders



Gottscho-Schleisner Photos

Two-story section of factory (right) contains testing laboratory and employees' recreation room; door shown is employees'

In order that improved machinery may be installed without interfering with present production, it was necessary to design this plant for possible relocating of equipment and rearrangement of operations. This factor stressed the necessity for flexibility in the overall design, with wide spacing of columns and constant clearance to roof beams. A temporary (south) wall was built of brick spandrels with high continuous sash and Cemesto board above the sash. Thus an economical wall was provided with no sacrifice in appearance.

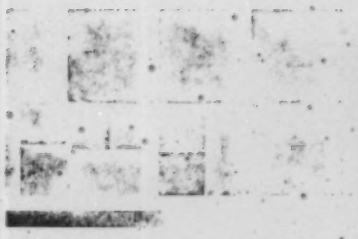
The 60,000 sq. ft. of storage and manufacturing area is a well lighted, heated and ventilated building with 17 ft. 8 in. clearance to the roof framing, and a hard concrete floor that can stand maximum abuse from the large lift trucks handling the paper rolls and pallets of finished boxes.

Natural as well as artificial lighting was considered desirable and two monitors were provided to run the length of the building with four lines of continuous sash 6 ft. 9 in. high. The artificial lighting medium is fluorescent fixtures giving an intensity of 25 foot-candles at working level.

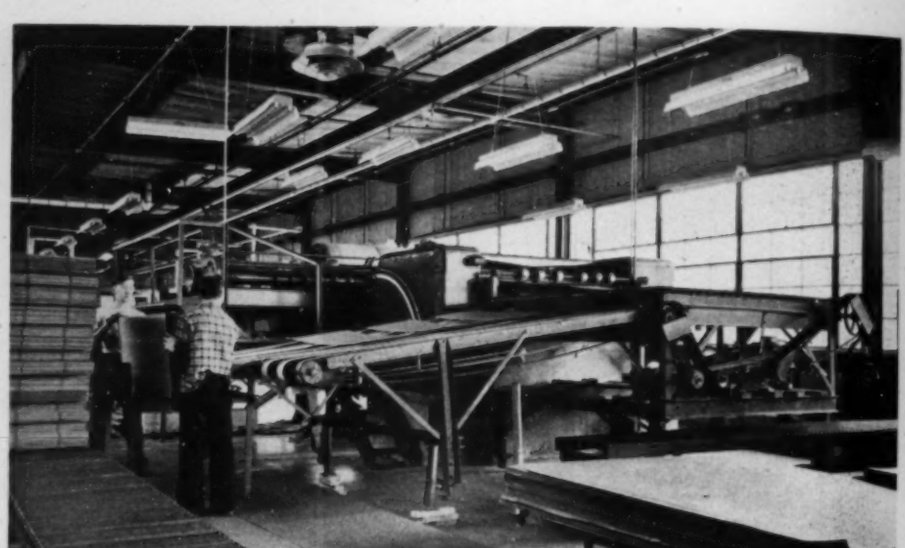
The factory area is heated with steam heated unit heaters with Anemostat diffusers. The flat roof is provided with 1 in. insulated board over precast concrete channels.

Because of the moist condition over the corrugating machine, considerable thought was given to the construction of the roof deck. From a standpoint of economy and serviceability a comparison was made between precast concrete, gypsum, steel plank, steel deck and wood plank. It was decided that the use of a dense precast concrete would result in a saving in maintenance cost and give long-life service without any appreciable

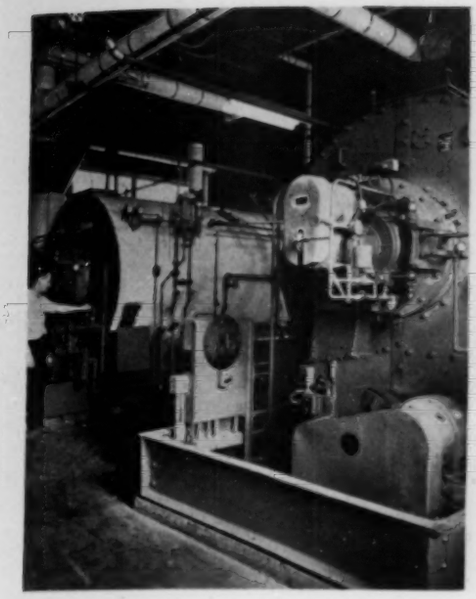
Across page: biggest item to be housed was the corrugating machine; paper from three rolls feeds in, comes out as flat corrugated sheets. Special building problem was hard floors for heavy trucks



Another problem in the corrugating room was moisture from gluing operations, requiring extensive ventilation. Fluorescent lighting supplements and balances daylight



Steel framing is kept "clean" by a special method of using the monitor space for diagonal tension bracing. Thus spans can go up to 60 ft. without the usual deep truss construction



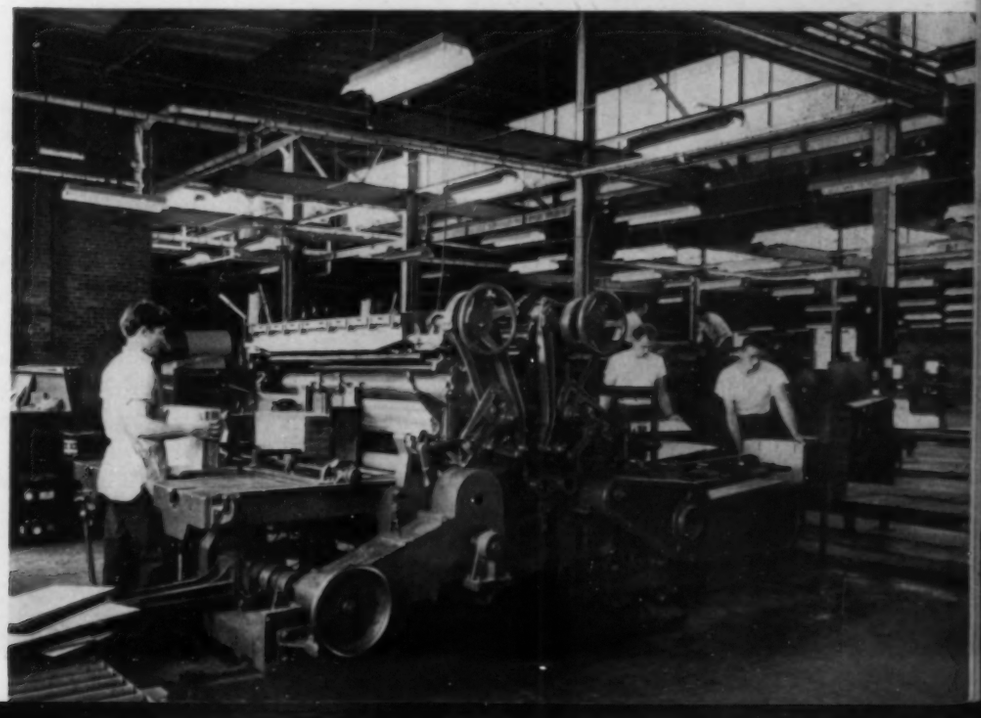
Boiler room has two 300 hp. oil-burning boilers for heating. Nearly a third of the building's 60,000 sq. ft. is taken up for storage of huge rolls of paper

Gottscho-Schleisner Photos

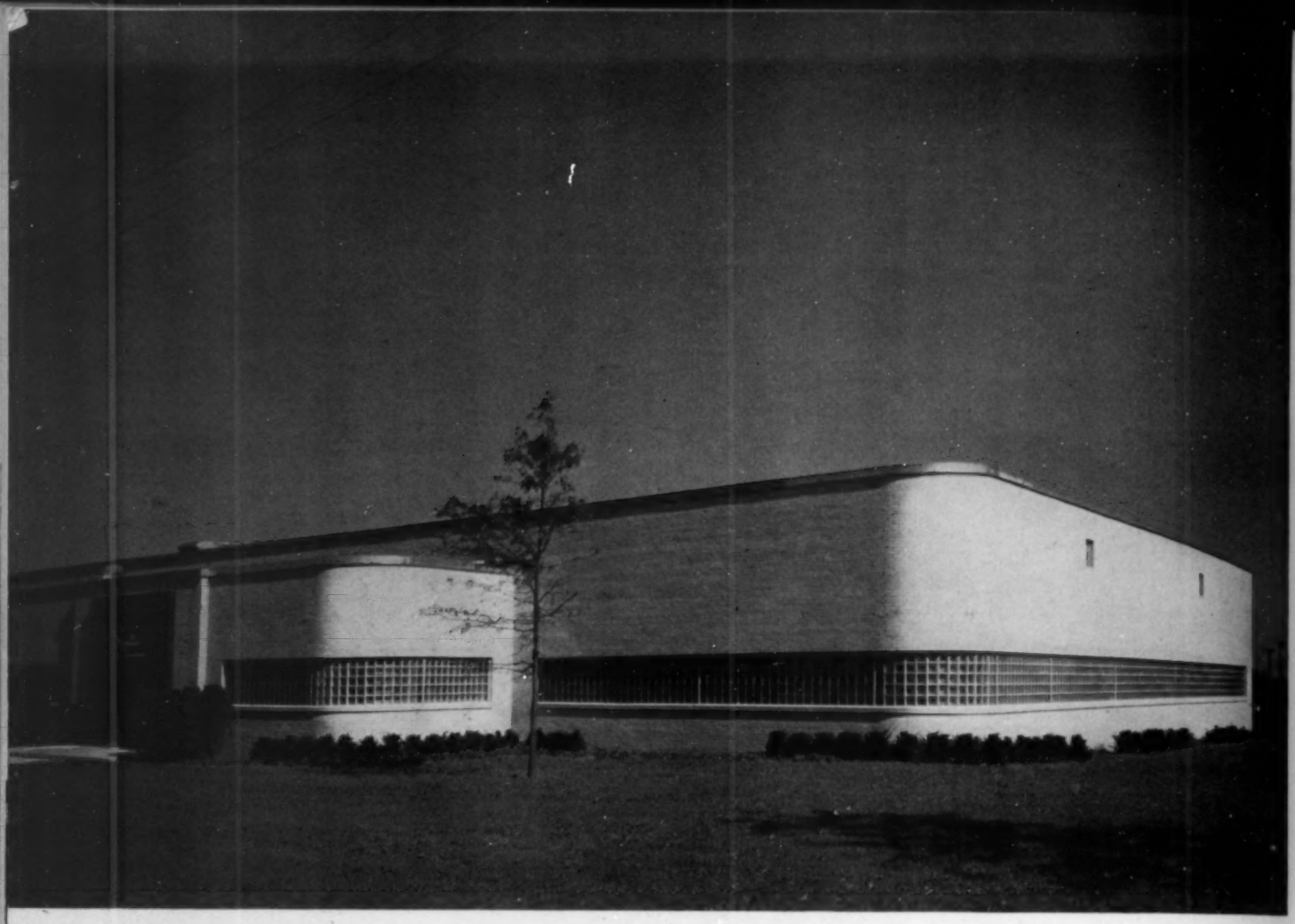
added installation cost. The addition of a 1 in. thick insulation board under the composition roofing contributed to a sizeable reduction in the heating requirements and insured a more comfortable building in both winter and summer.

A very important part of this type of plant design is the floor construction, because of the severe wear from the heavy lift trucks. The earth fill under the floor slab was carefully selected and firmly compacted to give uniform support to the heavy loads. The slab was reinforced with extra heavy wire mesh and given a separate 1 in. finish of special mix and surface hardening to withstand the heavy loads and constant traffic.

An unusual feature of the building is a new type of roof framing that was developed especially to meet all the requirements of this plant, but which should have wide application in industry. The 60 ft. and 45 ft. roof beams were given intermediate support at their parts by diagonal steel members placed up in the monitors. This made it possible to use much longer roof spans than would ordinarily have been practical without using trusses. Thus were combined the advantages of economy, clean interior appearance, easy maintenance of steel, simple fabrication and erection, wide column spacing, and a minimum height of building. A considerable saving in steel tonnage was realized by taking full advantage of the effect of these diagonal hangers on the beams and column.



Printing is another operation to be accommodated in a paper box factory. Flat sheets comes to the press on long conveyor lines, are printed, and conveyed again, still flat, to box machines



PLANNED FOR PRECISE CLIMATE CONTROL

New plant for Sapphire Hosiery Corporation, Telford, Pa.

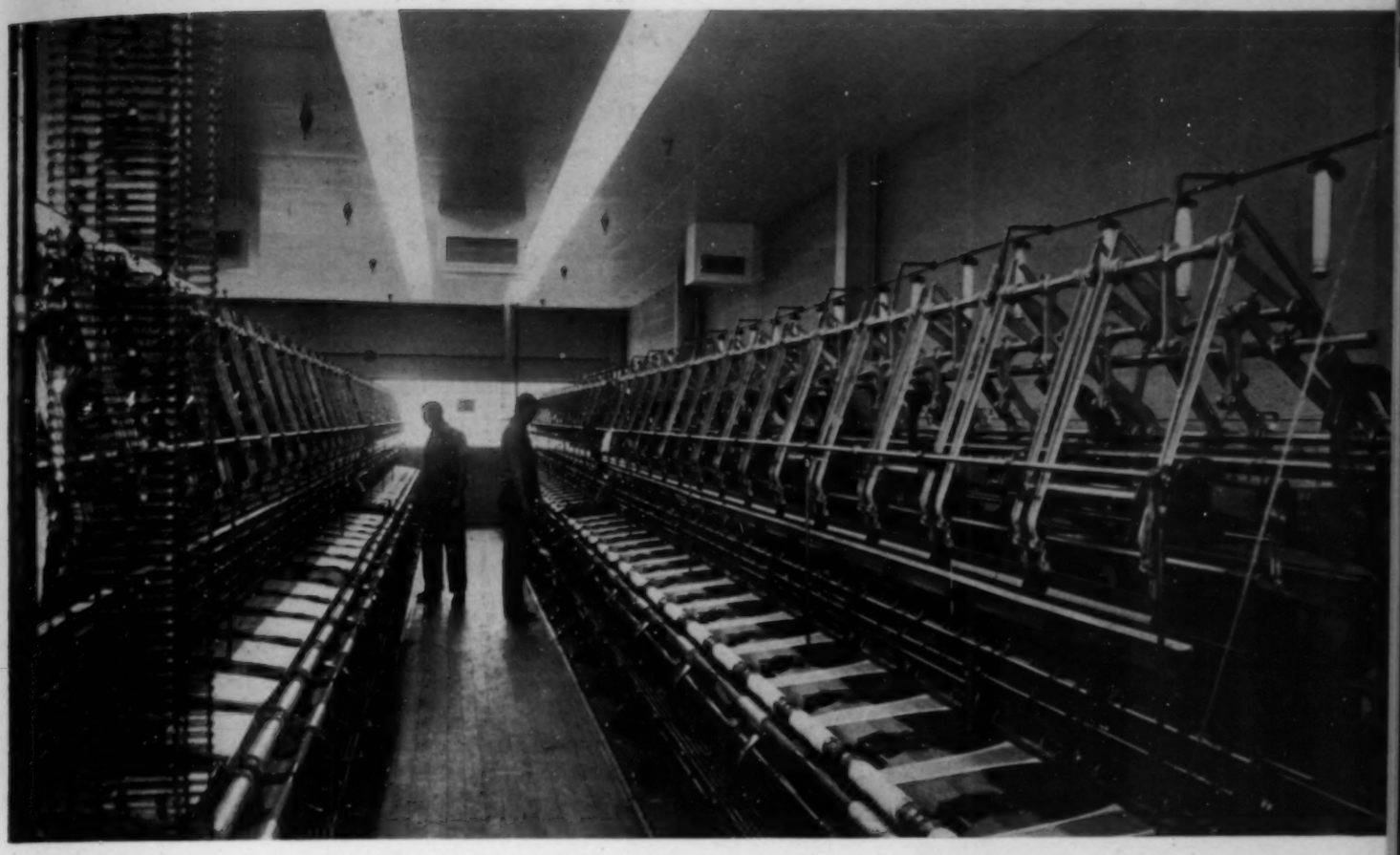
Lockwood Greene Engineers, Inc., Designers; A. Carl Stelling, Landscape Architect

THE STORY of this plant starts with a search for the best site by the designing engineers. They checked especially these factors: (1) availability of skilled labor, (2) flat terrain with economical sub-surface strata, (3) water available for fire protection, (4) suitable drainage disposal, (5) favorable attitude by the community, (6) sufficient space for expansion.

In the design of the building a major factor was the difficulty of obtaining the full fashioned knitting machines; the plant was planned for 16 machines, to be increased to perhaps three times as many, with some other facilities to be added later. As the operation indicated a one-story plant, more expensive than, say, one of two stories, extra space was kept to a minimum in the original design, and a temporary end wall built to permit easy expansion. Spans are long, both to accommodate the knitting machines and to maintain flexibility for future changes.

The building was designed to be completely sealed, with walls and roof insulated. The new knitting machines are very sensitive to changes in temperatures, and the current types of yarn require careful control of humidity. Also the machines generate considerable heat, which during most of the year must be removed. Thus production results demanded full air conditioning the year 'round.

Structural frame is steel, with trusses spanning 60 ft. over the knitting area. Exterior walls have 4 in. of face



William M. Rittase Photos

As the new knitting machines are very sensitive to temperature changes, the air conditioning system is designed to maintain exactly 80° and 50 per cent humidity

Window openings are sealed with glass block; there are no operating windows. Even with the most precise air conditioning control, looping and seaming operations are carried out under closed covers

William M. Rittase Photos

brick, light buff in color, backed up with 4 in. of cinder block over which was applied 2 in. of glass insulation. In production areas the cinder block remains unfinished; it is plastered in offices, rest room areas, and so on.

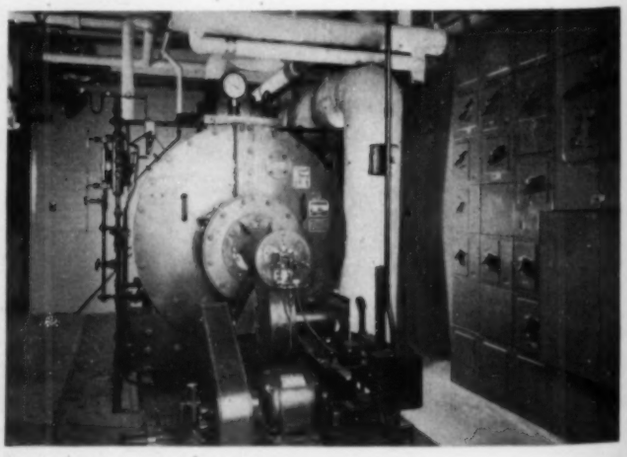
There are no operating windows; all openings are glazed with 8 by 8 double ribbed glass block, to eliminate the necessity for curtains as a protection against sun and glare. Exterior and interior sills are of precast concrete.

Most ceilings were suspended, with an acoustical ceiling composed of 4 ft. by 8 ft. by $\frac{1}{8}$ in. perforated asbestos board over which is laid 2 in. of glass wool muslin covered batts. Troffer lights were set flush with the finished ceilings. Air supply outlets project below ceiling.

The lighting and power system makes use of the best developments in electric light and power equipment that are available at the present time. All lighting and power panels are circuit breaker type. The air conditioning system is controlled by a central control panel which incorporates combination starters and circuit breaker equipment. All motors have individual sources of supply from the various power panels. Fluorescent lighting is employed throughout, with the exception of utility areas. In the manufacturing areas the lights are of continuous recessed troffer type — twin tube fluorescent. These recessed fixtures were designed to give a lighting intensity of 50 foot-candles at the working plane of the knitting machines. Other areas have between 25 and 35 foot-candles depending upon the use of these areas. The total power load is 330 KVA. The total lighting load is 40 KW.

The project represents an ultra-modern air conditioned full-fashioned hosiery mill, providing 80° F. and 50 per cent relative humidity. All duct work is concealed in the suspended acoustical ceiling. The equipment has been installed in a very small space by installing a mezzanine over the boiler room, thus leaving floor area for manufacturing purposes.

Boiler is oil-fired, automatically controlled



INDOOR-OUTDOOR PLANTING BEDS Part 2

By Henry B. Aul, Landscape Architect

(For a selection of best indoor plants, see TIME-SAVER STANDARDS, page 155)

THE MOST successful indoor window gardens present a reasonably attractive appearance not only during the months when the outdoor garden is dormant, but throughout the year. A glance up and down the column of the accompanying plant chart (pages 155 and 157) will show that foliage plants must be depended upon to form the foundation for this permanent planting. While this chart has room for only a fraction of the large number of plants available to the indoor gardener, it does include those that he is likely to grow with greatest success.

It will be noted that there are a limited number of plants attractive in both foliage and flower, and these should be given first consideration for the planting. There are also a few flowering plants that have a long season of bloom and should be teamed with the more permanent foliage plants. Seasonal flowering material including bulbs, azaleas and other plants received as gifts throughout the year can be depended upon to give the planting a colorful lift now and then.

Besides the evergreen foliage plants that have an upright, a spreading or round-shaped habit of growth and are suitable for a large part of the planting, there are excellent vines and trailers. Among these are the ivies, philodendrons, cissus and others that can be trained up the sides of the window or used to cover other supports connected with the planting bed. They are also used to face down the taller plants and to trail over curbs and the front edge of bench-high plant counters. In some arrangements they are displayed alone or in combination with foliage and flowering plants from hanging baskets.

Many of the foliage plants have unusually interesting and beautiful mottlings, stripes and other variegations in many different greens and other colors. The coleus, caladiums, bromeliads and begonias introduce reds, yellows, oranges, purples and other brilliant colors and color combinations to the foliage plant group.

Flowering maple, begonias in variety, bromeliads, the cacti and succulents, impatiens, geraniums and African violets furnish a basis for flowers throughout the year. During the fall and winter they are reinforced with chrysanthemums, various annuals, lantana, and holiday gift plants. In the late winter and spring hardy bulbs and azaleas forced into bud, freezias, amaryllis and veltheimia in flower make this the brightest of all seasons in the indoor garden.

During the summer months when many of the plants, which have put on a long performance indoors, are resting and recuperating in the garden, the indoor planting is kept attractive with the most rugged of the foliage plants, the African violets, begonias and other standby flowering plants. They are augmented by the tuberous-rooted begonias, fuchsias, gloxinias, achimenes and fancy-leaved caladiums.

Frequently it is possible in connection with modern indoor-outdoor plantings to find a semi-shaded location outside the window where the summering indoor plants can be set in the ground and can continue to be a part of the window planting. Ferns, ivy and philodendron can be used indoors and out, begonias indoors and out, draceua and pandanus indoors and hosta outdoors to strengthen the continuity of the two plantings.

The tuberous-rooted and the fibrous-rooted begonias are excellent plants to create a tie between the indoor and outdoor plantings. Since growing conditions are so dissimilar between the two areas it is seldom desirable to duplicate the plantings on both sides of the window. It is enough that a number of the same

Indoor window garden filled with an assortment of flowering and foliage plants in pots. The planting has its greatest depths and height in the corner near the mirror. Indoor plants are thus effectively displayed, and the entire planting serve to frame the view of the outside garden

Monstera deliciosa, a foliage plant of unusual ornamental appearance; it has the odd common name of Swiss Cheese Plant

plants, or plants of the same type, are used in both gardens. Many of the hardy, broad-leaved evergreen shrubs, such as the rhododendron, laurel, azaleas and andromeda are frequently used as background for the outdoor portion of the planting, while the various philodendrons, monstera, dieffenbachia, aglaonema and others fill the background with quite similar effect indoors.

Plants in the large window garden must be arranged to form a planting pleasing in appearance from inside the room, but at the same time they should frame, not block, the view into the garden. Tall-growers are placed toward the back and sides of the space, with the medium and low-growing specimens in the center and at the front edges. Variety in foliage and plant forms prevents the transition from low to tall growing plants from becoming so even as to appear monotonous. Any arrangement that begins to resemble a dealer's counter where plants are displayed for sale should be suspect, for too much emphasis is being placed on individual plants. Group them without crowding to gain the true effect of a planting. If the planting can be arranged to form a partial partition between rooms, to fill a tall corner space or in other ways to serve some secondary purpose, it will prove effective. Flowering and colorful foliage plants are given a background of dark green foliage plants.

The first article in this series outlined various types of window plantings and

One of the Bromeliads, attractive in both foliage and inflorescence

Hippeastrum, or Amaryllis, a colorful winter and spring-blooming bulb

placed emphasis on the desirability of the metal or masonry-lined planting bed in which to arrange plants in pots on a two-inch drainage base of pebbles. Water, which is kept in the bottom of the pan and near the top surface of the layer of pebbles, supplies the humid atmosphere that is needed to grow plants successfully in modern heated rooms.

The pebbles present a clean, fresh surface on which to arrange plants in pots and simplify the task of watering. With this arrangement a normal room temperature can be maintained during the day, but it is desirable to have the night temperature drop ten to fifteen degrees.

Individual pot-grown specimens are easily turned for better display or to give them light on all sides. Plants that have passed their prime are removed and

Cissus rhombifolia, ornamental foliage on a plant of trailing habit

replaced without trouble and, for variety, the entire planting may be rearranged at times. Plants suffering from diseases or insect attack can be removed for treatment.

Plants grown in a properly humidified atmosphere not only are less subject to insect attack than those in a hot, dry situation, but they are easier to water. They dry out less rapidly, thereby avoiding a drastic change from too wet to too dry. Nothing more elaborate than a medium sized watering pot with a long spout is required for watering the average collection of plants grown in pots. Exactly when to water is decided by each gardener as he learns to know his plants. Some gardeners go by appearance, others by weight or by the sound of the pot when rapped. Plants are given a good soaking only when they need it.

Gardens planted around modern windows benefit from the sun visor, roof overhang or other arrangements planned to keep the summer sun away from them. As indicated on the plant chart, plants have their individual preference as to the amount of light they like best, but even the ones that require the sun need some protection when it is the hottest. Slat roller shades, draw curtains and Venetian blinds are as welcome to the plants as to the plantsman, where there is no other provision for shading the window.

So long as gas is eliminated from the atmosphere plants do not require a large volume of fresh air. Window and door openings should be arranged in such a way that no strong drafts reach the window planting. However, when the weather is warm they can be given full exposure to the outdoors.

CONTROLLING MOISTURE IN BUILDINGS

Article 1: A study by HHFA indicates that the soil is, surprisingly, the source of many serious condensation problems*

IN RECENT years, especially in low-cost and temporary housing, there has been a tendency to omit basements, and often in their place "crawl spaces" have been substituted, in many cases with wholly unsatisfactory results. Structural failures, material deterioration and unpleasant living conditions have occurred frequently when crawl spaces have been used.

The troubles have been caused by condensation of moisture in various parts of structures with the soil of the crawl space acting as the moisture source. The prevalence of such trouble can probably be attributed in the past to the lack of information concerning hazards accompanying crawl spaces and precautions necessary. Realizing for some time that crawl spaces are a major source of potential trouble, the HHFA has investigated the problems of proper design and treatment and has issued recommendations for adequate ventilation of crawl spaces, ventilation of attics and loft spaces and treatment of the ground within crawl spaces.

Many advantages have been claimed for houses with living and sleeping areas all on one floor; cost studies, considering initial expenditure, often show that pier and skirting construction is preferable to that providing a basement. Specification items, however, such as construction details, insulation, protection to mechanical lines, and site planning, often fail to deal with certain fundamental differences between basementless houses and those with basements. Often stock architectural plans for low cost dwellings are practically identical for a house either with or without a basement. By not incorporating precautionary measures when using crawl spaces, unnecessary and costly damage has resulted, with repairs costing many more times that of preventive treatment.

BACKGROUND

At first thought, there might be a tendency to attribute condensation problems within dwellings to insulation alone, without regard for other possible causes. It is well known that a comparable increase in trouble from prolonged condensation has been experienced with the increased use of insulation. This in no way means that insulation materials are basically at fault, but they have often been improperly used, with the result that wood has rotted, steel corroded badly, insulation deteriorated and paint failed in outside walls. These very same troubles are encountered when the design of a structure with a crawl space does not take care of controlling the vast amount of moisture that may exist in the soil underneath the structure.

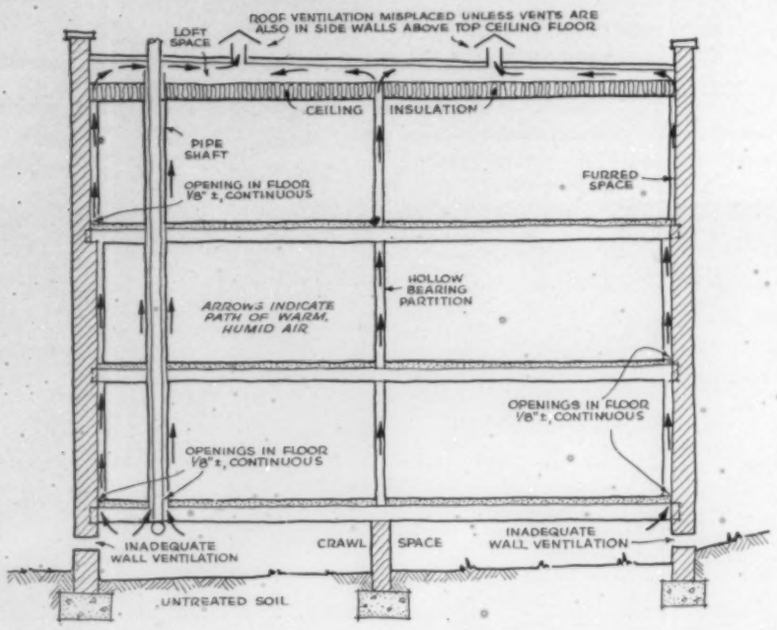
A survey of large housing projects made by the HHFA (NHA) in 1944 to ascertain details of construction and planning that caused major problems of upkeep, management and cost revealed that the term "crawl space" is immediately associated with terms such as wetness, dampness, rotting of lumber, insulation fallen out of place, rusting of steel, freezing of water and heating return lines, rodents, vermin, musty odors and general unhealthy conditions.

Late in 1945 and early in 1946 a survey of war housing projects, both public and private, was made by the HHFA to obtain experience data on wartime building practices necessitated by re-

Evidence of condensation trouble in apartment due to moisture from inadequately ventilated crawl space. Roof condition is shown after a top-story ceiling was removed; note the excessive corrosion of the steel roof beam, bridging and furring channels

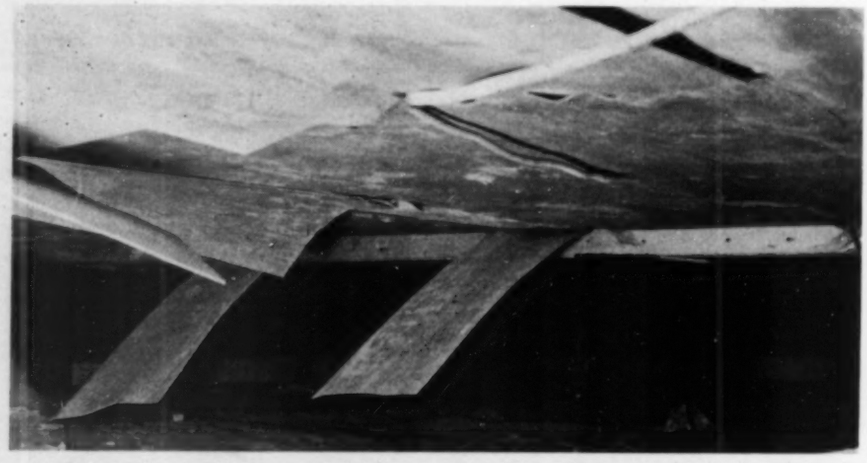
First-floor beams in apartment crawl spaces rusted at ends of webs and lower flanges

*For further information see, "Crawl Spaces," Ralph R. Britton, Engineering Adviser Tech. Staff, HHFA Tech. Bulletin, Jan., 1948


ROOF VENTILATION MISPLACED UNLESS VENTS ARE ALSO IN SIDE WALLS ABOVE TOP CEILING FLOOR
LOFT SPACE
CEILING
INSULATION
PIPE SHAFT
OPENING IN FLOOR 1/8" ±, CONTINUOUS
FURRED SPACE
HOLLOW BEARING PARTITION
ARROWS INDICATE PATH OF WARM, HUMID AIR
OPENINGS IN FLOOR 1/8" ±, CONTINUOUS
OPENINGS IN FLOOR 1/8" ±, CONTINUOUS
INADEQUATE WALL VENTILATION
CRAWL SPACE
INADEQUATE WALL VENTILATION
UNTREATED SOIL

Cross section of typical apartment investigated by HHFA illustrates how warm, humid air (path indicated by arrows) reached the loft space and condensed on the cold roof

Below: crawl space moisture in one war housing project resulted in the delamination and separation from framing members of a plywood soffit of stressed skin construction



Below: high humidity in the crawl space caused the deterioration of blanket insulation

strictions on critical materials. Many condensation problems were discovered and traced directly to the use of crawl spaces. Sponsored by the technical staff of HHFA with other government agencies participating, the survey covered approximately 50 projects in Wisconsin, Illinois, Indiana, Maryland, Virginia and the District of Columbia. Much of the construction was for a five-year life, and certain departures from past practices were justified for this type of construction. Some projects, however, were designed to last at least 40 years. The survey covered construction supervised by Housing and other government agencies and some by private interests.

The technical staff of the HHFA was asked early in 1945 to make an analysis and recommendations of a corrective nature on a large housing project where "moisture" trouble in the roof was being experienced. The trouble had been current since construction was completed, but the owners were baffled as to the cause. Many previous attempts to find a solution had failed. Specifically, the trouble was (1) excessive corrosion of steel members in the loft spaces of 3-story steel and masonry flat roof buildings; (2) total collapse of third-story suspended lath and plaster insulated ceilings (in less than two years in some instances); (3) excessive corrosion of mechanical lines and structural steel members below the first floors (in the crawl spaces).

The project was composed of 72 buildings, 40 ft. by 80 ft. in size, three stories in height, of masonry, steel and concrete and considered by the builder and owner to be of excellent construction with a 35–40 year life. Crawl spaces had ventilation in the walls to the extent of only about three per cent of generally recommended good practice, which in the case of these 3000 sq. ft. buildings should have been 20 sq. ft. Loft spaces averaged 14 in. high and were ventilated only by four 8-in. round ventilators extending through the roof near the centers of the buildings. There were no ventilating openings in the walls of the loft spaces as originally built. A cross section of a typical building in this group is shown in the drawing on this page.

The investigation of this project continued over a period of 15 months with a few spot inspections periodically after the major work had been completed. The owner provided a full-time superintendent and special equipment and also furnished labor and material to make alterations to 10 experimental buildings in an effort to correct the difficulties. The value of the work furnished by the owner for research and investigation alone was estimated between $10,000 and $15,000, with cost of actual repairs to all buildings more than double this amount.

The findings that follow are from the personal observations of Ralph R. Britton, who acted as project manager on both the war housing survey and the research project, comprising the 72 apartment buildings.

FINDINGS AND DISCUSSION

The ground surface of an enclosed crawl space can be a source of moisture which may, if not properly treated, result in extremely dangerous conditions within the building. The fact should not

be overlooked that this source of moisture is operating 24 hours per day, as compared to other intermittent moisture-making operations which are of relatively short duration in most dwellings. In the case of the 72-building project, reliable data showed that from 32 to 45 gal. of water were being left in certain structures (3000 sq. ft. area) in 24 hours and that most of this moisture came from the soil serving as the floor of the crawl spaces. Observations in the crawl spaces of this project showed psychometric properties of air as high as the following: temperature, 79° F; relative humidity, 90 per cent; and dew point, 75° F.

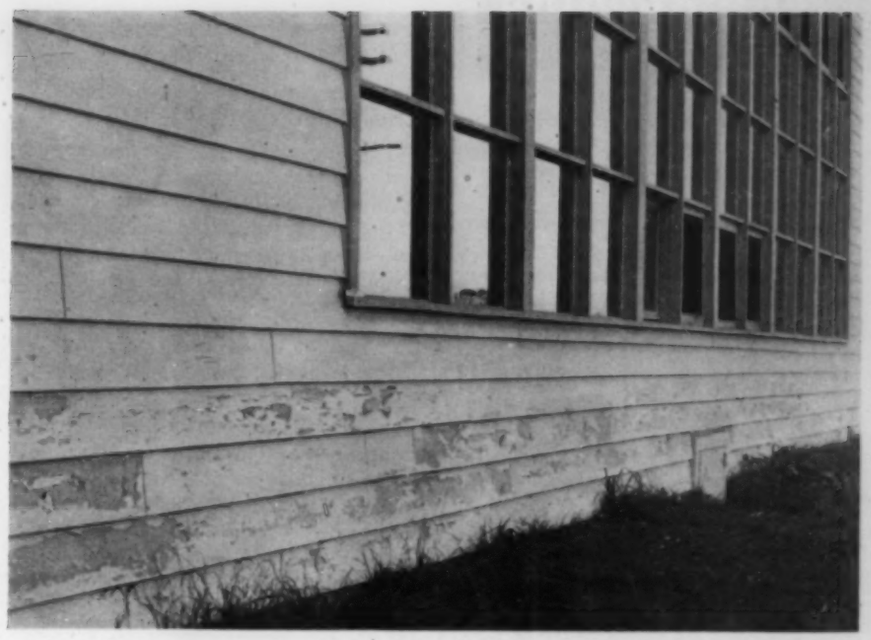
The quantity of moisture in the soil of a crawl space may be as high as 23 per cent of the weight of the soil, and with soils having fines ("fines" are soil particles below 1/480 in. in size) in the vicinity of 50–80 per cent, the supply of moisture appears to be constant regardless of the depth of the water table. Separate tests of evaporation of water from soils containing 56 per cent fines with a constant supply of water at a depth of 30 in. below the surface indicated that evaporation from the earth may run as high as 19 gal. of water per 24 hrs. per 1,000 sq. ft., with an average of 12.1 gal. Evaporation from free water under the same conditions will yield 17.4 gal. per 24 hrs. per 1000 sq. ft. It is believed from results of these tests (conducted with smooth tamped soil) that the evaporation from rough soil may well exceed that of free water.

Apartment Project

In the apartment project (see drawing) the warm, humid air was raised by stack action up through the furred spaces of the outside walls, the hollow partitions and the enclosures for vertical piping (shafts), and condensed on the cold concrete and steel surfaces comprising the underside of the roof; the roof was not insulated on top. Although floors were of concrete poured against masonry walls, shrinkage allowed continuous openings about ⅛ in. wide at the junction of walls and floors.

During cold nights, frost and ice accumulated on the underside of the roof deck only to drop off when the sun heated the roof. Puddles of water at least 12 in. in diameter were observed on top of the insulated metal lath and plaster ceiling. Under these conditions efflorescence and flaking appeared on the ceiling, and the metal ties rusted and failed when they could no longer carry the weight.

Although the steel of the 72-building project was copper bearing and had a shop coat of paint, first floor joists were badly pitted, and one of the worst conditions noted was the 15 per cent loss of section in four years. Other steel was badly rusted, both in local areas and at times over the entire floor area. Water was trapped under blisters in paint also.



Paint failure on a temporary war housing project attributed to crawl space moisture

It was noted that certain buildings in the project had experienced little trouble although they were sometimes within 100 ft. of those where trouble had occurred. Tests revealed that the soil in the unaffected buildings had a high content of coarse materials which apparently greatly reduced the capillarity and resulted in less water at the surface to be given off to the air.

Preliminary tests indicated that two preventive treatments were quite favorable — the use of a 3-in. topping of ⅛- to ½-in. gravel on the soil and the use of heavy, mineral surfaced, roll roofing to cover the soil. From visual observations the crawl spaces treated appeared to benefit by either method, but costs were in favor of the roll roofing.

When ventilation was added to the walls of the loft spaces of a test building of the 72-apartment project, eliminating the suction effect of the roof ventilators to the crawl spaces, it was noted that the crawl spaces became rapidly wetter.

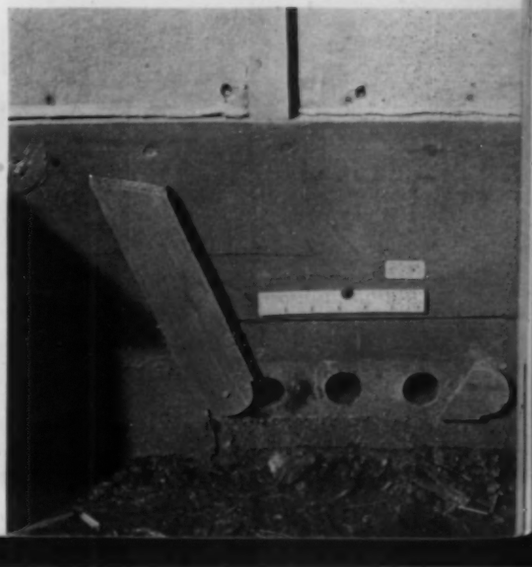
All trouble was apparently eliminated in the test buildings when ventilation to the extent of 1/1500 of the building area was cut into the crawl spaces, when this same ventilation area was added to the loft space and when the crawl space ground surface was covered with the mineral surfaced roofing. These corrective measures were then adopted for the entire project with no trouble reported during the winter of 1946–1947.

War Housing Survey

In one wood frame project in the war housing survey where crawl spaces were almost completely closed up the year round, 16 first floors had rotted out in four years, to the extent that they had to be replaced. In six years it was necessary either to renew or to make major repairs to all of the 200 units. On this project the ground in the crawl spaces had been allowed to remain uneven so that in many places dirt was in actual contact with the wood joists and girders. Much of the rotted lumber, however, was not at locations where dirt was in contact with it; therefore, a major cause of this needless, costly repair job could be attributed to unventilated and closed up crawl spaces.

On one project in the Central States, closed-up crawl spaces resulted in moisture contents in the wood as high as 50 per cent and the complete delamination and separation from framing members of a plywood soffit. The plywood used was

Feeble gesture at ventilating 640 sq. ft. crawl space. Only nine of these 1⅜ in. holes were provided. Dampness caused condition shown at bottom opposite page



of the moisture resistant type, but the glue used for assembly of plywood to framing members was not a waterproof adhesive.

Moisture from the ground in other projects delaminated and softened plywood flooring so that it acted almost like a sheet of rubber; moisture also condensed on blanket insulation, adding extra weight which caused the insulation to drop out from between the joists. When this occurred the insulation rested on the ground and acted as a wick to bring up more moisture.

Delamination of plywood roof sheathing and condensation on nails through any kind of roof sheathing was often found, and directly traced to wet crawl space conditions where humid air was raised through thermal differences to cold, inadequately ventilated roof surfaces.

Job specifications were found which stated that crawl space ventilation might be closed up in winter where heat loss through the floor would be excessive. Frequently construction details provided doors and slides to close ventilation for both crawl spaces and loft spaces.

SUMMARY AND RECOMMENDATIONS

1. Inadequate attention to treatment of crawl space floors and deficiences in ventilation of crawl spaces have in the past been the sources of major condensation trouble.

2. Since data indicate that total moisture from crawl spaces may be far in excess of that from normal living habits of occupants, and since equal amounts of ventilation are more effective in a loft space (less obstructions and more wind sweep), the crawl space should have more ventilation than the loft space.

In the absence of special, competent engineering data on a given project, the following guides may be expected to guard effectively against troubles that have been reported in this article.

Crawl Spaces

Ventilation (free area) in crawl space walls should equal 2 sq. ft. per 100 ft. of building perimeter plus 0.5 per cent of the building area. This amount allows for some decrease in effectiveness due to clogging of screens and growth of shrubbery.

Loft Spaces or Attics

When the roof slope is more than 3 in. per ft. and there is no effective vapor barrier in the top story ceiling, ventilation should be installed in the gable ends as high as possible with free access to all other enclosed spaces between the living quarters and the roof in the total amount of 1/300 (free area) of the reflected roof area.

When the roof slope is less than 3 in. per ft. and there is no effective vapor barrier in the top-story ceiling and the ventilation is at the eave line or close to it, ventilation of not less than 1/150 of the reflected roof is recommended. All spaces in attic or loft should, of course, be interconnected.

Where an effective vapor barrier is assured in the top-story ceiling, loft or attic space ventilation specified may be greatly decreased. Such decrease may well be as much as 90 per cent where controlled construction is assured and walls or crawl space do not contribute to moisture supply in the attic or loft space.

If crawl space floors are covered with mineral surface roll roofing in an effective manner, the specified wall ventilation may be reduced as much as 90 per cent for controlled construction.

3. When relying on ventilation only for condensation control in the crawl space and the loft space, the floors over the crawl space and the ceilings under the loft or attic spaces should have good insulation properties. Mechanical lines in ventilated crawl and loft spaces should also be insulated. Good practice recommendations on insulation are given in "Performance Standards," a recent publication of the HHFA.

4. Loft or attic spaces should not be ventilated through the roof as the drawing on page 146 indicates. Existing building codes and even model basic codes now being written are not clear on this subject, and are being interpreted to prohibit ventilation in side walls of loft spaces. Such practice is dangerous.

5. Attention is directed to other possibilities in guarding effectively against prolonged condensation. Crawl spaces may be vented by ducts through the roof, opening directly into the crawl space below the first floor. Treatments of soil other than covering with roofing show promise. Sufficient data, however, have not as yet been gathered and analyzed to allow good practice recommendations to be established.

6. Trouble should not be invited by providing closing devices for needed ventilation.

7. For crawl space construction the following good practice requirements for taking care of matters other than the condensation problem under discussion are, of course, still recommended:

(a) adequate headroom for the purpose of maintaining equipment;

(b) proper slope of outside grading away from the building;

(c) possible drains in the crawl space if the floors are below outside grade and of a soil composition not allowing seepage;

(d) full 18 in. clearance between ground and bottoms of wood framing or other material subject to attack by termites;

(e) ready access to all parts of crawl spaces for inspection against deterioration and termites.

CONCLUSION

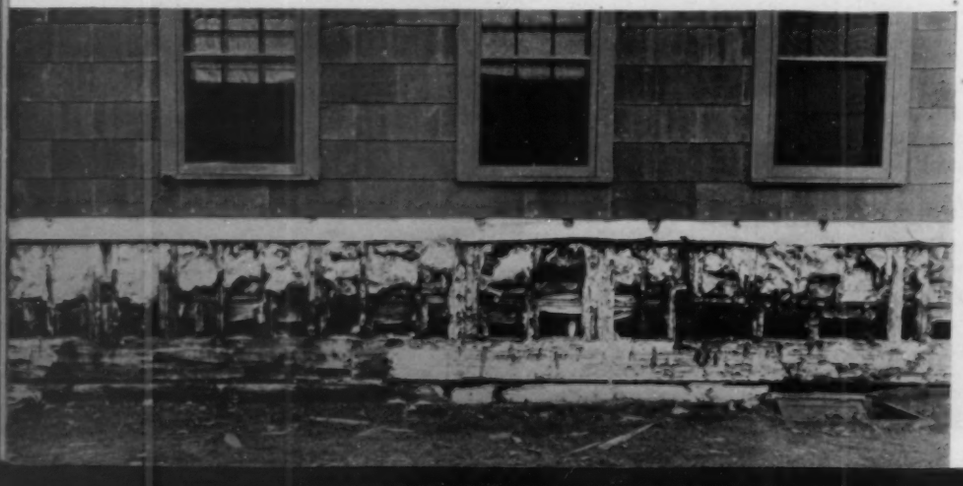
As more data are acquired, readily understood and applicable functional requirements for crawl space design may be developed. Such a functional requirement may well be substantially:

"The design shall be such as to reasonably assure lack of prolonged condensation on any surface either exposed or enclosed (including equipment) of any part of the dwelling or building."

One way of accomplishing the desired result is by adequate ventilation; however other means of doing the job adequately are bound to be perfected.

The experience data and recommendations were compiled to create a better understanding of the effect crawl spaces may have on dwellings and other buildings. HHFA Technical Staff hopes that they will result in more adequate and complete recognition of the problem by architects, engineers and builders as shown in future plans, specifications and details.

Damp crawl space and insulated wall sections accelerated destruction of sheathing boards



ENGINEERING APPROACH TO HOUSE DESIGN

Bureau of Standards report suggests design methods for determining adequate strength of houses without waste of materials

In carrying out an extensive research program on building materials and structures, the National Bureau of Standards has developed an engineering approach to house design which promises substantial aid to the building industry. The application of engineering principles to the design of houses, as presented in a forthcoming Building Materials and Structures Report*, provides a complete and logical method for determining allowable loads for walls, floors and roofs. Suggested methods for designing small houses to have adequate strength without waste of material are described and illustrated in considerable detail. The report is a pioneering attempt to apply engineering principles in the design of houses; further studies will no doubt be needed before universally accepted methods are developed.

The need for such a report has not come about because houses in general need to be stronger, for few fail, but largely to judge how much material is superfluous. Strength of houses has been made adequate in the past by patterning them after those which have withstood the test of service conditions. Available service records, however, do not provide accurate criteria for judging how much excessive material is being used.

Subjecting complete houses to known loads is very expensive and time consuming, so Bureau engineers applied loads to specimens which accurately reproduced the most important structural parts of a house. For each element such as walls, floors, partitions and roofs, methods of loading in the laboratory simulated the actual loads under service conditions. It was possible by this method of test to determine the structural properties of a new construction without waiting for a performance test over a period of years.

The report can be broken down into three major parts: (1) procedure for determining design loads, including calculation methods for wind and snow loads; (2) suggested criteria for determining allowable loads together with a listing of allowable loads for 100 different house constructions; and (3) computation of design loads for a typical one-story and two-story house for three different locations and comparison of these calculated design loads with allowable loads.

Design Loads

When designing a house for strength, it is essential to know the greatest loads which may be applied to elements of the house during its service life. These are the design loads for compression, transverse, and racking (shearing) loads on walls and partitions and the design transverse loads on roof and floors.

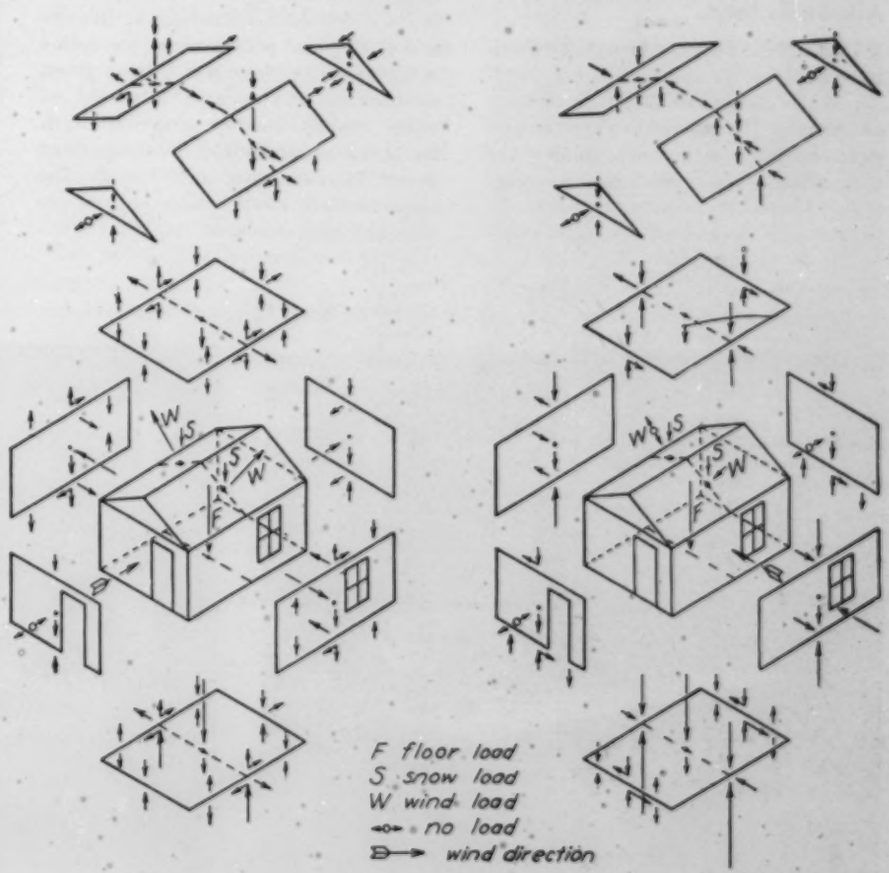
Besides normal loads, walls may also be required to withstand concentrated loads, that is, large forces over a small area such as a ladder placed against either face. Impact loads may be applied accidentally to a wall, for example, by a coal truck backing against the outside or by a person or bookcase falling against the inside face of the wall. Concentrated and impact loads, to a considerable extent, are unavoidable under service conditions.

Racking (shearing) loads are applied to a wall by intersecting walls against which a wind is blowing. This effect is simulated in the laboratory by forces at diagonally opposite wall corners.

The same kinds of forces act on load-bearing partitions as on outside walls, but their magnitudes may differ. Non-load-bearing partitions are not designed for compressive or racking loads, which under service conditions, are negligible and may therefore be ignored. However, impact and concentrated loads, through accident, are sometimes applied to non-load-bearing partitions.

Floors are subjected to transverse, concentrated and impact loads. Transverse loads result from the weight of furniture and persons; concentrated loads occur under the legs of heavy

Application of mechanics to house design yields this diagram of reactions on a house



*BMS 109, Strength of Houses: Application of Engineering Principles to Structural Design, Herbert L. Whittemore, John B. Cotter, Ambrose H. Stang, and Vincent B. Phelan. Obtainable from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

furniture; and impact loads are caused by objects falling or persons jumping on the floor.

Roofs must withstand transverse and concentrated loads. The former type is caused by wind and the weight of snow or workmen; the latter by the weight of material and tools during construction or repair of the roof.

In the body of the report methods of calculating design loads begin with a graphic illustration of reactions on each element of a simple house.

After these reactions are explained, the report takes up the design of individual house elements. Roof design loads are calculated for a typical house in Madison, Wisconsin. Next follows the method for calculating design loads on hip and valley rafters. After describing calculations for design loads on walls, recommended methods are discussed and illustrated for distributing vertical reactions throughout a wall section. The design section then concludes with partitions and floors.

For determination of wind and snow loads, weather bureau information for maximum wind velocities and snow depths were evaluated and adapted to isogram maps. These maps, used in conjunction with included graphs, permit the computation of wind and snow loads.

Allowable Loads

Perhaps the reason adequate methods have not been developed before for finding all the *design* loads for each element of a house is that there have been no satisfactory methods for determining the *allowable* loads on a particular construction. Allowable transverse loads on wood-frame floors and roofs are computed frequently, but these methods cannot be applied with confidence to pre-fabricated sheet-steel floors or to other unusual constructions. In particular there are no accepted methods for computing allowable impact or racking loads on any construction.

The authors of the report believe that for house construction, loading tests in a laboratory are much more satisfactory than any computational methods. Laboratory tests provide a quick and economical means for developing a floor, wall or roof construction to have the necessary strength at the lowest practicable construction cost. Both the materials and the design can be changed repeatedly until the most satisfactory results are obtained. This report discusses the basic considerations for selecting an allowable load from the laboratory data, based on strength and safety only. It should be a simple matter for anyone to modify the criteria to comply with other essential requirements.

Typical House Design

Design loads for a typical one-story and two-story house were computed for three locations, Los Angeles, Calif., Miami, Fla., and Portland, Maine, representing extremes of snow and wind loads. The ratio of the allowable loads to the design load for each of 100 constructions is given for the typical houses. In general the picture presented by the ratios is that constructions which have given satisfactory service over a period of years usually have enough strength for severe conditions. The comparison shows, however, that some had insufficient strength while others were much stronger than necessary.

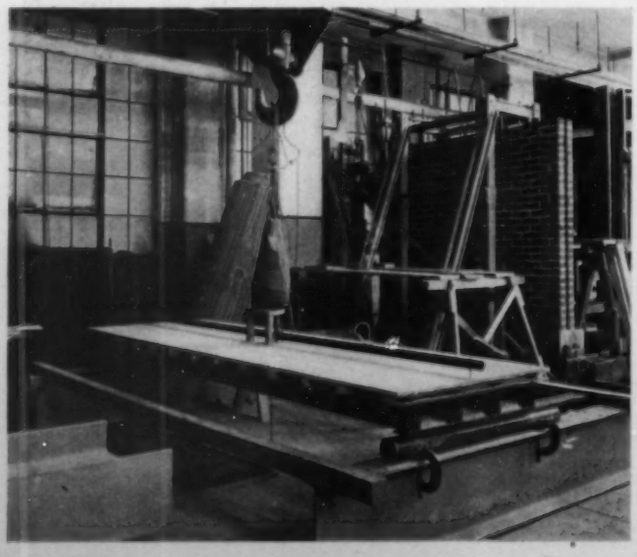
Other Features

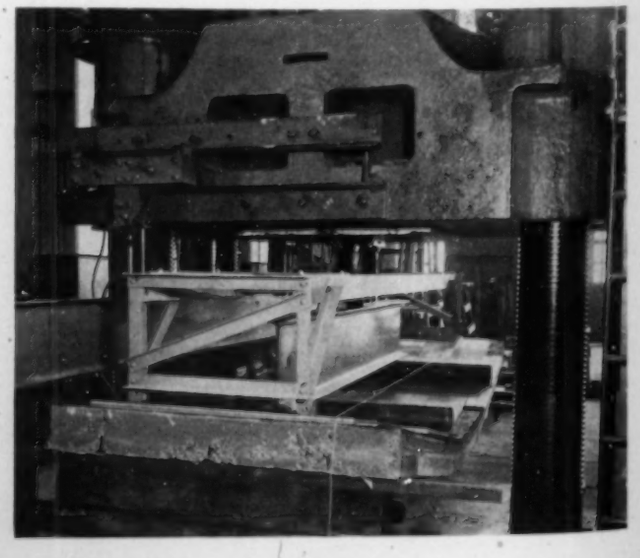
One important feature of the proposed method for obtaining design loads is that design loads for fastenings, such as roof to wall, are easily obtained. Consideration of a number of usual fastenings shows that they have only a fraction of the strength necessary. Inadequate fastenings probably account for much damage from severe storms. If the strength of all fastenings were ample for any load expected, the increase in cost of the house would be small and failures would be prevented.

Materials and mode of fabrication favorable to high strength and other factors are discussed for each group of material — wood, steel and masonry. To cite one example, there is an indication that for wood-framed walls, the allowable load is greater when the facing material (plywood fiberboard) is glued to the studs than when it is nailed. Whether to glue or nail remains an economic problem which the builder can solve only after making tests and studying costs.

The engineering approach to strength of houses as presented in the Bureau of Standards report should open the way for designers to introduce unconventional materials and unusual methods of fabrication through laboratory tests to determine whether such constructions have adequate strength. Such data will greatly shorten the time required to develop and obtain acceptance of new types of constructions for houses. At the same time, a substantial saving of materials as well as improved protection against storm damage should be a welcomed result.

Left: actual service conditions simulated for impact on wood floor. Right: concrete floor specimen being tested for transverse load





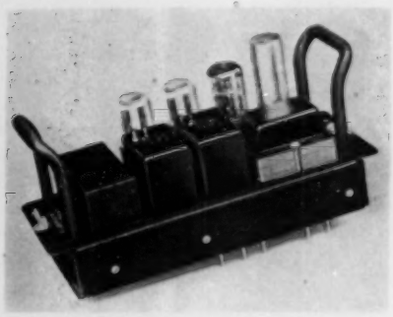
PRODUCTS for Better Building

AIR CONDITIONING CONTROL

Designed to provide added thermal comfort and operating efficiency in the heating, cooling and ventilating of factories, office and commercial buildings is a new electronic control system.

Extreme sensitivity to temperature change, flexibility and simplicity are the advantages claimed possible through the use of electronic circuits.

Essentially, operation of the new air conditioning control is based on the fact that the electrical resistance of the small coil of wire used in the thermostat changes with a change in temperature. Through the tubes of an electronic relay, the change can be measured and amplified enough to operate the control motors which, in turn, position the valves and dampers of the heating or air conditioning system.



Electronic relay of air conditioning control system employs standard radio tubes

The basic units of the control include a room thermostat, duct and immersion thermostats, an electronic modulating motor and an electronic relay.

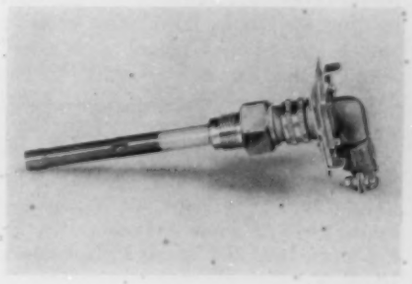
An important feature of the control is said to be the ease with which compensators may be added which change the inside temperature in accordance with the outside temperature.

Single thermostats can be used for both heating and cooling with automatic change-over from one to the other at any selected temperature level.

The room thermostats of the control system are held to their mounting brackets by the means of clips so that they may be removed easily and quickly. The units include a temperature selection lever on both the outside and inside of the cover. If desirable, as in the case of factories and commercial buildings, the external lever and dial can be removed so that the passerby will not be able to tamper with the control setting.

Duct and immersion thermostats are said to maintain selected water or air temperatures at all times so that adequate supplies will be available when called by the space thermostats.

The tubes used in the amplifier unit are standard radio tubes which, because they operate well below their design load, are said to function at a minimum for several years before they need changing. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



Duct thermostat used to maintain selected temperature for air conditioning control

ELEVATOR CONTROL SIGNAL

A prominent feature of a new control system for elevators is a small electron tube located in the landing fixture which permits persons desiring to use the elevator to stop it by merely touching a pushbutton.

When a person presses either an up or a down pushbutton, the call is registered and the car automatically stops level with the floor and the doors open. The operator is relieved of all duties except pressing buttons in the car to register the destination of passengers, closing the door and starting the elevator.

The electron tube is behind each button-like disc in the landing fixture at each floor. When a person touches a disc, a translucent arrow lights up to show that the call is registered. The tubes behind the buttons act as light sources.

As long as no call is registered at a landing, no current flows through the electron tube. Current flows in the tube circuit as soon as the pushbutton is pressed and is maintained until the car stops at the desired floor.

Simplification of installation and elimination of many mechanical devices is claimed for *Electronic Signal Control*. The new landing fixtures, for example, are said to require considerably less wiring than old style fixtures. Otis Elevator Co., 260 11th Ave., New York 1, N. Y.

FIBERGLAS FABRICS

A treatment called *Coronizing* is said to impart improved handling, draping and cleaning qualities to *Fiberglas* curtain and drapery fabrics.

The first fabric in the new Coronized line to be given national distribution will be a heavy-weight marquisette curtain material, in a range of pastel shades, designed primarily for use as fire-safe curtains in hotels, theatres, night clubs, schools and in other contract installations handled by architects, decorators and industrial designers.

In addition to their other properties, these fabrics are said to be wrinkle-resistant and water repellent. The fabrics can be hand or machine sewn like any other fabric; and it is claimed that they can be hand or machine washed or dry cleaned by conventional methods. Owens-Corning Fiberglas Corp., 16 E. 56th St., New York 22, N. Y.

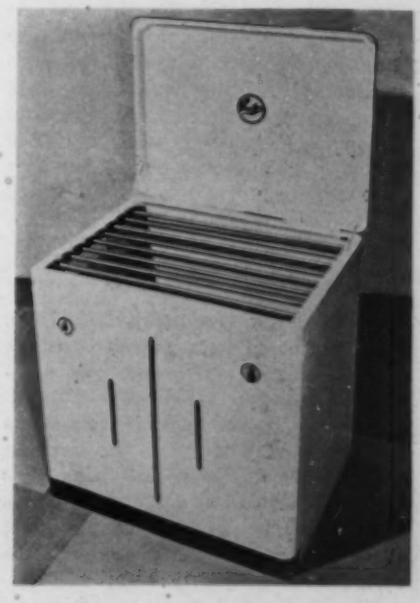
LAUNDRY DRIER

A stationary type laundry drier has been recently introduced in which the garments, linens, etc. to be dried are draped over aluminum rods and dried by forced-circulated hot air.

Advantages claimed are: (1) there is no wear and tear on the wash; (2) articles are dried smooth and unwrinkled and (3) woolens may be dried with no perceptible shrinkage.

Heat is produced by a heavy-duty electric heating element, equipped with temperature control similar to that used on electric stoves. An automatic cut-off protects against overheating. Air circulation is provided by means of a motor-driven fan.

The *Barton Drier* measures 36 by 38½ by 36½ in. The steel cabinet is finished in white enamel with black and chrome trim.



Material is draped over aluminum rods in this stationary type laundry drier

Aside from single dwelling and apart-

(*Continued on page 184*)

MANUFACTURERS' LITERATURE

Module Furniture Units

Module Magic. The complete line of modular furniture units made by the Mengel Company is shown in this booklet. By using a special type of screw connector, many combinations of units can be assembled. Since each unit is designed on a 6-in. module, many combinations are possible. Graph paper and line drawings of all the units to scale are included in the booklet for use in working out preliminary sketches of combinations. All units are made of mahogany in a "natural" finish. 16 pp., illus. The Mengel Company, 1122 Dumesnil, Louisville 1, Ky.*

Metal Trims

Chromedge Metal Trims. This catalogue on metal trims and their uses shows more than 650 shapes and sizes of *Chromedge Metal Trims* and includes detailed drawings with installation instructions and suggestions for decorative trim applications. All trims are pictured actual size, handily arranged, and fully indexed. 69 pp., illus. B & T Metals Co., Columbus 16, Ohio.*

Architectural Plywood

Weldwood Stock Sizes. The United States Plywood Corp. announced recently that architectural weldwood plywood, previously custom made to specification only, is now available in stock sizes. A new illustrated brochure lists the panels currently in stock at United States Plywood warehouses, together with their retail selling prices. United States Plywood Corp., 55 W. 44th St., New York 18, N. Y.*

Glass Block

Daylight In Industrial Buildings. Outlines the advantages which *Insulux* glass block offers to owners and operators of industrial buildings.

The booklet is arranged in ten sections embracing such topics as the daylight transmitting qualities of *Insulux* glass block, its insulation value and savings in fuel attained from its use. The last three sections are devoted to design descriptions of *Insulux* glass block, architectural details, and specifications. American Structural Products Co., Toledo 1, Ohio.*

Merchandising Lighting

The Right Ways To Light Your Merchandise. Covers many phases of display and merchandise lighting such as: lighting for semi-service merchandise, light-for-style merchandise, accent lighting, showcase lighting, wall display lighting, window lighting, store front lighting, lighting standards, correlation of light and color. Many "before and after" photographs accompany the text to illustrate the various principles of lighting described. In the back of the brochure is a section of equipment suggestions which shows the type of bulb or fixture to be used for many applications. 24 pp., illus. Sylvania Electric Products, Inc., 500 5th Ave., New York 18, N. Y.*

Framing Anchors

Here's A Better Way To Build The Industry Engineered Home. Pamphlet containing detail drawings of many of the places that *Teco Trip-L-Grip* framing anchors can be used to join structural members in an industry engineered house. 4 pp., illus. Timber Engineering Co., 1319 18th St., Washington 6, D. C.

Roof Tile

Booklet describes the physical properties and construction specifications of *Kaylo* insulating roof tile. The first section of the booklet is devoted to a general description of *Kaylo Roof Tile*, a structural unit having high insulating value rather than mere roof insulation. The second section of the booklet lists specifications, design data, and details. 8 pp., illus. John I. Carr, sales promotional manager, American Structural Products Co., Toledo 1, Ohio.*

Air Conditioning

(*1*) *McQuay Heating Coil Catalogue No. 300*, (*2*) *Heating Coil Data Bulletin*, (*3*) *Cooling Coil Catalogue, and* (*4*) *Cooling Coil Data Bulletin.* These brochures show redesigned McQuay heating and cooling coils with the new plate-type ripple fins as well as stronger and more versatile coil casings. 28 pp., 28 pp., 36 pp., 40 pp. resp., illus. McQuay, Inc., 1600 Broadway N. E., Minneapolis 13, Minn.

Fan Speed Control

Precision Speed Control for Boiler Draft Fans with the Regutron Controlled Magnetic Drive (*No. 4400-TEC-1078*). Booklet discusses principles of operation with graphs, diagrams and installation pictures. Describes how *Adjustable Speed Magnetic Drive* with *Regutron Control* provides wide range, smooth, precise, rapid and dependable speed control of boiler draft fans. 20 pp., illus., graphs, diagrams. Electric Machinery Mfg. Co., Minneapolis 13, Minn.

Cooling Towers

Binks Induced Draft Cooling Towers With Masonry Walls (*Bulletin No. 38*). Pamphlet contains information on the subject of masonry-type cooling towers, to be designed by the architect or engineer and built of stone, brick, concrete, structural tile, etc. Also discussed are the merits of spray-filled or deck-filled masonry cooling towers. Tower capacities, dimensions, fan sizes, and other data are included. 4 pp., illus., details, tables. Binks Manufacturing Co., Water Cooling Div., 3114–40 Carroll Ave., Chicago 12, Ill.

Cork-Covered Staircases

Stairway of the Stars. Illustrates the ways that Corinco cork tile can be used attractively as well as for practical reasons on staircases. Cork Insulation Co., Dept. R-7, 155 E. 44th St., New York 17, N. Y.*

Glass Coating

Skyco No-Glare. Folder describing a light blue translucent liquid that is brushed or sprayed on glass to reduce glare and filter out heat producing infrared rays. 2 pp., illus. The Skybryte Co., 3125 Perkins Ave., Cleveland, Ohio.

Heating Systems

Thrush Flow Control System (*Form FCE-648*). Booklet devoted to engineering information on the forced circulating Thrush Flow Control System of hot water heat. Installation data, wiring diagrams and typical details on radiant heating as well as conventional type hot water heating systems are presented. 20 pp., illus. H. A. Thrust & Co., Peru, Indiana.*

Young Heat Transfer Products. Covers complete range of heat transfer products including convectors, unit heaters, air conditioning equipment, radiators, aircraft products, heat exchangers, jacket water coolers and large capacity and standard size cooling and condensing units. All units are pictured and described. 20 pp., illus. Young Radiator Co., Racine, Wis.*

Pittsburgh's Great Institutions Join Forces for Central Heating. Detailed account of how a group of cultural, educational and medical institutions cooperated to achieve a practical central heating system covering an extensive area of the Oakland district of Pittsburgh. The booklet shows a complete plot plan of the area served and contains considerable engineering data and technical information about the system. 12

(*Continued on page 200*)

* Other product information in Sweet's File, 1948.

INDOOR-OUTDOOR PLANTING BEDS: Part 2

By Henry B. Aul, Landscape Architect

(Continued from page 144; continued on page 157)

PLANTS FOR INDOOR WINDOW GARDENS	Full Sunlight South Window	Some Sunlight East & West Windows	Full Light North Window	Flowering Plant	Foliage Plant	Vine or Trailer	Season of Top Attractiveness *	Rest Period Required	Rooting and/or Growing Period Required	Minimum Care Required	Tolerant of Gas	REMARKS
Abutilon hybridum Flowering Maple	X	X		X			Wntr					Pinch out tips of young shoots to keep bushy.
Achimenes grandiflora, etc.		X		X			Spr Sum	X	X			Gloxinia-like flowers.
Annuals—Alyssum, Nicotiana, Garden Balsam, Marigold, etc.	X			X			Wntr		X			Self-sown seedlings may be brought indoors in fall.
Aglaonema commutatum, Chinese Evergreen		X	X		X		All Year			X		Foliage plant of rugged constitution. Several species.
Azalea indicum, Kurume		X		X			Wntr Spr	X	X			Keep cool indoors. Plunge outdoors in summer.
Begonia scharffi, rex, semperflorens, etc.		X	X	X	X		All Year					Flowering plants par excellent. Give full sun in winter.
Begonia tuber hybrida Tuberous Begonia			X	X			Sum	X	X			Spectacular summer bloomer. Store dry in winter.
Bromeliads—Billbergia, Cryptanthus, etc.	X	X	X	X	X		All Year	X		X	X	Ornamental flowers and foliage. Water sparingly.
Bulbs—Hardy forcing, Tulip, Daffodil, Hyacinth, Crocus, etc.	X			X			Wntr Spr	X	X			Unbeatable for cheerful flower color indoors.
Cacti and Succulents	X			X	X		All Year	X			X	Answer to hot, dry situation. Keep on dry side Nov., Dec.
Caladium bicolor Fancy-leaved Caladium		X			X		Sum	X	X			Colorful summer foliage plants. Dormant during winter.
Chrysanthemum hortorum Garden Chrysanthemum	X			X			Fall	X	X			Keep cool indoors.
Cissus rhombifolia, antartica, etc.		X			X	X	All Year					Deep colored vines. Withstand heat and dryness.
Coleus blumei Painted Nettle	X	X			X		All Year		X	X		Start new plants from cutting —each year
Dieffenbachia picta		X	X		X		All Year			X		Highly ornamental foliage plant.
Dracaena fragrans varieties Corn plant		X			X		All Year			X	X	Clean cut foliage plants.
Ferns-Boston, Holly, Birdsnest, Maidenhair		X	X		X		All Year					Keep moist at roots. Long favorite foliage plants.

* Wntr = Winter; Spr = Spring; Sum = Summer

DAY-LINE* FIXTURES

now with TURRET* Sockets

Easy and Foolproof to Relamp

Now the Day-Line... already the pace-setter among industrial fixtures for simple installation, economical maintenance, and heavy duty service... simplifies the relamping problem. All 40-watt lamp fixtures are equipped with the new TURRET Sockets that make relamping as safe and easy as plugging into a wall outlet.

- **Lamps slip in instantly from either end and *stay* in. Vibration cannot shake them loose.**
- **Spring-action keeps lamps well centered... assures positive floating contact.**

RESULT:

Less lamp mortality... lower maintenance costs... more customer satisfaction. Another good reason why it pays to install the DAY-LINE for all your industrial applications!

The **DAY-LINE** Heavy-duty industrial fluorescent fixtures are designed for two and three 40-watt and two 85-watt lamps. Sturdy, porcelain enameled reflectors... truss-type channel construction... unit or continuous installations. The 40-watt fixtures are equipped with the new TURRET Sockets and open or closed end reflectors.
U. S. Patent Nos. 2317434, D-135375 and D-133458.

May we send you bulletin 3-A-2 with complete details?

*T. M. Reg. U. S. Pat. Off.

010

IT'S EASY TO SEE WHEN IT'S

DAY-BRITE *Lighting*

Day-Brite Lighting, Inc. 5465 Bulwer Avenue, St. Louis 7, Mo.
Nationally distributed through leading electrical supply houses.

In Canada:
address all inquiries to Amalgamated Electric Corp., Ltd.,
Toronto 6, Ontario.

INDOOR-OUTDOOR PLANTING BEDS: Part 2

By Henry B. Aul, Landscape Architect

(*Continued from page 155*)

PLANTS FOR INDOOR WINDOW GARDENS	Full Sunlight South Window	Some Sunlight East & West Windows	Full Light North Window	Flowering Plant	Foliage Plant	Vine or Trailer	Season of Top Attractiveness *	Rest Period Required	Rooting and/or Growing Period Required	Minimum Care Required	Tolerant of Gas	REMARKS
Ficus elastica, lyrata, pumila		X			X	X	All Year			X	X	Pumila is a climber. Lyrata is the fiddle-leaf fig.
Fressia species	X			X			Wntr Spr	X	X			Fragrant flowers.
Fuchsia speciosa		X		X			Sum	X	X			Exotic summer bloomer. Rest on dry side in winter.
Hedéra helix, species and var. English Ivy		X			X	X	All Year					Well known Evergreen Vine. Keep cool indoors.
Hippeastrum Amaryllis	X			X			Wntr Spr	X	X			Dramatically colorful.
Howea forsteriana Kentia Palm		X			X		All Year			X		Rugged constitution.
Impatiens sultani, holsti, etc.		X	X	X			All Year			X	X	Long season bloomers. Give sun in winter, part shade in summer.
Lantana camara	X			X			Wntr	X			X	Showy flowers. Start new plants from cuttings—annually.
Monstera deliciosa Swiss Cheese Plant			X		X		All Year			X		Unusual, indented leaves.
Pandanus veitchi Screw Pine		X			X		All Year			X	X	Graceful foliage plant.
Pelargonium hortorum Geranium	X			X			All Year		X			New plants started from cuttings.
Peperomia obtusifolia, sandersi, etc.			X		X		All Year					Keep cool. Tolerant of varied light conditions.
Philodendron cordatum Philodendron			X		X	X	All Year			X	X	Good color and constitution.
Phoenix roebelini		X			X		All Year					A graceful palm. Water sparingly.
Saintpaulia ionantha African Violet		X	X	X			All Year					Remarkable, small-flowering plant.
Schismatoglottis roebelini		X	X		X		All Year			X		Attractive exotic foliage. Keep moist.
Sinningia speciosa Gloxinia		X			X		Sum	X	X			Large colorful flowers. Store dry in winter.
Veltheimia vividifolia	X			X	X		Wntr	X				Good foliage and flower. Bulb—Keep dry in summer.

* *Wntr = Winter; Spr = Spring; Sum = Summer*

Durable OAK FLOORING WELCOMES STYLE CHANGES

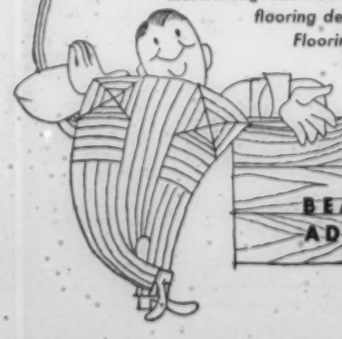
Besides providing initial beauty in a new home, oak floors lend themselves perfectly to future changes in decor.

Completely new color schemes, for instance, find their perfect complement in the warmth and hospitality of oak. A new chair or rug, of whatever style or color, will always harmonize with the charm of natural oak grain and texture.

Appearance and wearing qualities of wall-to-wall carpets are enhanced when laid on oak. They stay firm and smooth, they look better and clean more easily.

Owners thus have a wide latitude for desired changes, knowing that new ideas or styles will meet with a warm welcome, from always beautiful, always durable oak floors.

ASK FOR ARCHITECTS' DATA BOOK—*which gives quick and usable information for specifying, laying, finishing and maintaining oak floors. Available from your local oak flooring dealers or from the National Oak Flooring Manufacturers' Association, 814 Sterick Building, Memphis, Tenn.*



OAK FLOORS

BEAUTY • DURABILITY

ADAPTABILITY • ECONOMY

NEWS FROM CANADA

(*Continued from page 10*)

lieved to be the first man in Canada convicted of seeking an exorbitant profit on a commodity no longer under a price ceiling.

The fine and costs will almost equal the $3661 allegedly made by the speculator on 1532 kegs of nails. The normal profit would have been about $965. Prosecution was launched under a regulation of the Wartime Prices and Trade Board, and Rt. Hon. C. D. Howe, Minister of Reconstruction, has stated that other court actions may follow.

Housing Loans Up

Central Mortgage and Housing Corporation, the Dominion Government's shelter agency, announces that loans approved under the National Housing Act for the first four months of this year are 2½ times greater than those approved during the same period last year.

The score to May 1, 1948, is 4276 new dwelling units valued at $21,341,680 compared with 1773 units valued at $8,341,900 for the corresponding period in 1947.

Building Time Unchanged

Dwelling units completed in April took an average 7.7 months to build, according to the latest housing bulletin issued by the Dominion Bureau of Statistics. This represents no speed-up in time over the average for the preceding three months. About ⅕ of the units took longer than nine months to complete. On a regional basis, construction took longest in British Columbia.

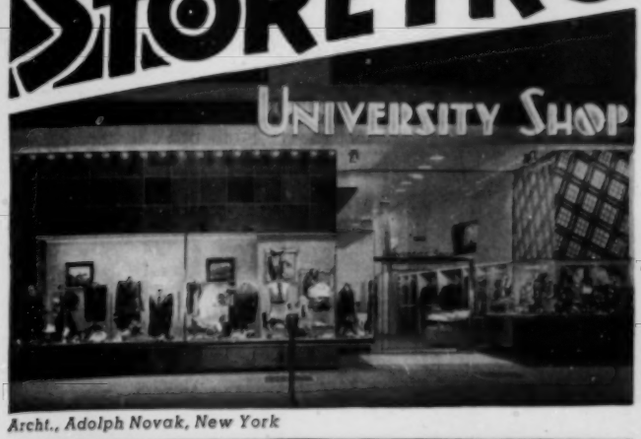
Research Program Outlined

A recent issue of *Builders' Bulletin*, published by the Central Mortgage and Housing Corporation, clarifies the Corporation's relationship to the new Division of Building Research established by the National Research Council. The Division is to act as the "research wing" of the Corporation in all technical matters affecting housing, but will in no way usurp the function of a commercial testing agency. The Division's assessment of the merits of new building materials and equipment will be based on test results and other technical data supplied by the sponsors of such products.

The *Bulletin* points out that the Division is to cooperate closely with other agencies of the Dominion Government in connection with special aspects of its work. Since building research must always be linked to local conditions, steps have been taken toward the development of regional units in the Prairie and

(*Continued on page 160*)

STORE FRONTS with SELLEVISION



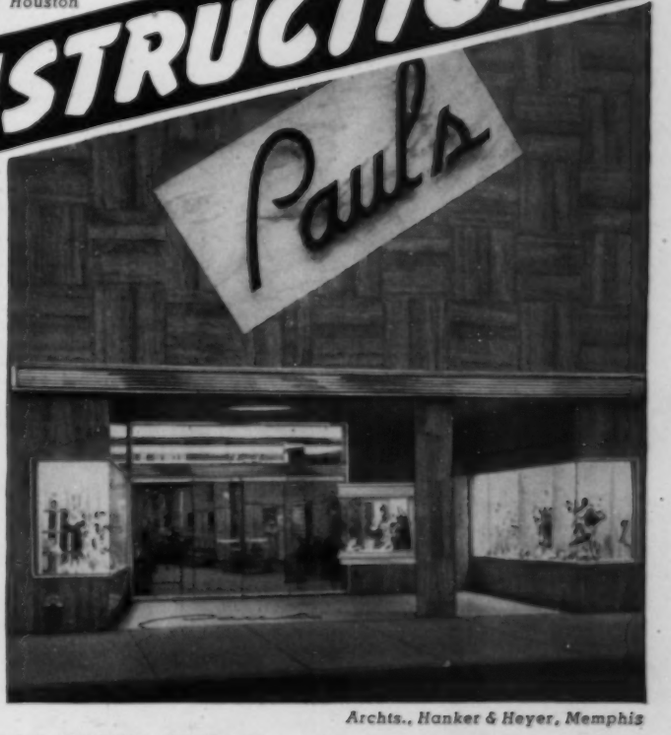
Archt., Adolph Novak, New York

Nunn & McGinty, Archts., Houston

Van Os & Flaxman, Archts., Shreveport

BRASCO CONSTRUCTION

Archts., Sidney H. Morris & Associates, Chicago



Archts., Hanker & Heyer, Memphis

★ A COMPLETE LINE FOR EVERY DESIGN ★

Brasco
SAFETY-SET STORE FRONTS

BRASCO MANUFACTURING CO.
HARVEY • (Chicago Suburb) • ILLINOIS
Specialists in Metal Store Front Construction for more than 35 Years

Copr. 1948 by Brasco Manufacturing Co.

Slowly revolving outlets distribute the heated air continuously downward in a constantly changing direction, completely and thoroughly covering the working area

Write for details

L. J. Wing Mfg. Co.

154 W. 14th Street

New York 11, N. Y.

Factories: Newark, N. J. and Montreal, Canada

NEWS FROM CANADA

(*Continued from page 158*)

Maritime Provinces. Eventually it is hoped to have field activities proceeding in the Central Provinces, British Columbia and northern Canada as well.

It is stated that the work of the Division "will always be primarily of an applied character, although it is hoped eventually to carry out some fundamental studies. Since so much information regarding good building practice is already available, but not in general use, a prime activity of the Division will be the publication of this information in suitable form. . . . At the same time, contacts are being established with larger engineering and building organizations with the view of carrying out research work on actual construction projects."

Two sections of the Division already have been formed: one on codes and specifications, which will administer the National Building Code, and one on soil mechanics.

Mortgage Business Booms

Mushrooming of the amount of money invested in mortgages is shown in a report, recently released by the Central Mortgage and Housing Corporation, on the financing operations of lending institutions in Canada.

The report states that the decline in mortgage loans held by lending institutions which began in 1932 was not checked until 1946. In 1945 the lowest point in 13 years was reached, with $553 million outstanding. But by the end of 1946, holdings had increased to $611 million at an annual rate comparable to that of the two years of highest real estate lending, 1927 and 1928.

Cash disbursements on mortgage loan account totaled $204.7 million in 1947, 45 per cent more than in 1946. Loans for new construction accounted for $133.4 million, or over half the volume of business done. By far the greatest bulk of lending for new construction was in the residential field, where loans amounting to $106.1 million, involving 25,582 dwelling units, were made.

D.P.'s in Construction

Canada is anxious to close its labor gap. On June 15, the National Employment Service had over 50,000 vacant jobs on file. The immigration of workers from other countries is being encouraged and, with labor union consent, 30,000 displaced persons are being admitted from Europe. Of these, 11,000 already have arrived. About 2600 are construction workers, most of whom are employed on hydro-electric and railway

(*Continued on page 172*)

Step-by-Step Demonstration of the Effectiveness of HOLOPHANE Store Lighting

a: Cove lights only: inadequate to do more than provide a background by wall and ceiling brightness.

b: Cove lights *plus* CONTROLENS incandescent inserts: here the only "selling excitement" is directed to the merchandise counters—but absence of general lighting causes a spotty, gloomy, under-lit appearance.

The camera eye records in these unretouched photos the effectiveness of combining three lighting methods: (1) fluorescent general (2) incandescent inserts for accent and color balance (3) cove fluorescent for atmosphere lighting . . . Mass-sale retailers, such as this, whose unit-profits are moderate, must keep close check on their overhead. Results prove that this lighting more than pays its own way.

Because of their great flexibility, their capacity to provide the exact quality and quantity of lighting for any given situation, CONTROLENSES* completely eliminate costly "trial-and-error" and "make-shift" methods . . .

CONTROLENSES afford the designer the widest planning range. He can combine incandescent and fluorescent sources for the most satisfactory color balance or for effects of emphasis — with literally no break in the integrated design. The efficiency and permanence of built-in prismatic CONTROLENSES provide the greatest return for each lighting dollar invested — with extra dividends in economical maintenance and enduring serviceability.

c: Cove lights *plus* HOLOFLUX* fluorescent: minus incandescent inserts: over-all visibility with a desirable general illumination but the counters have faded-out—have lost their selling power.

d: Cove lights *plus* general fluorescent *plus* incandescent inserts: Results: a perfect combination of lighting for selling.

GOLDEN JUBILEE Holophane SINCE 1898 SCIENTIFIC ILLUMINATION

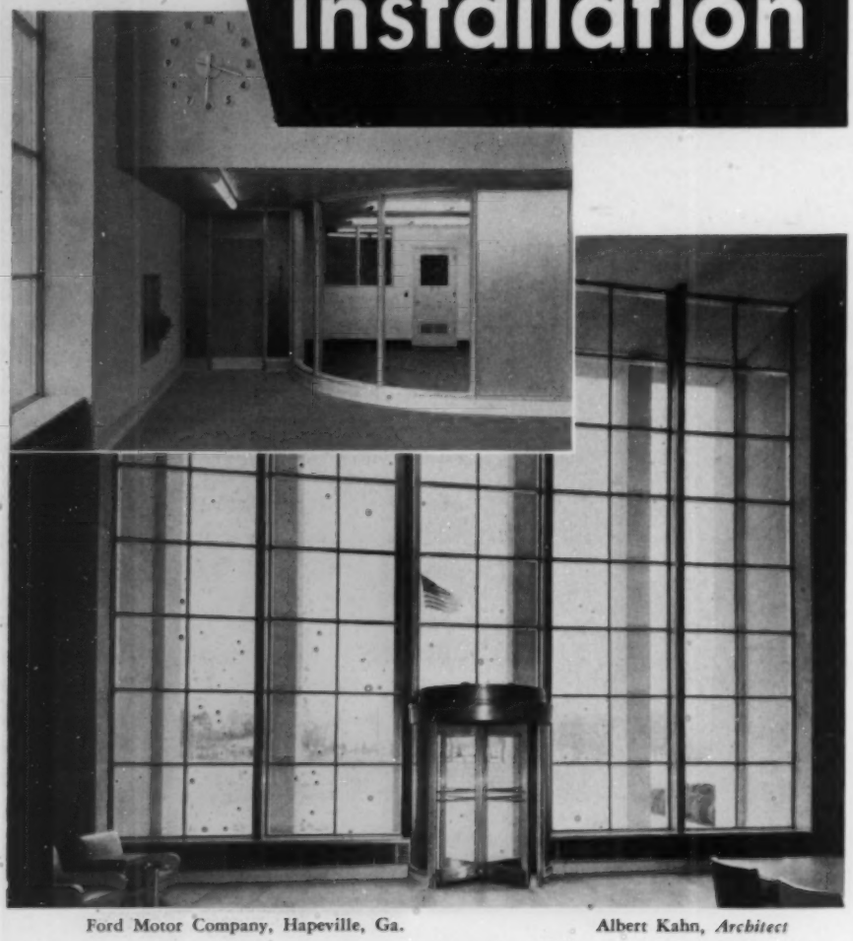
*Reg. U. S. Pat. Off.

HOLOPHANE COMPANY, Inc.

Lighting Authorities Since 1898 · 342 MADISON AVENUE, NEW YORK 17, N. Y.

THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

Another ★ michaels installation



Ford Motor Company, Hapeville, Ga. — Albert Kahn, *Architect*

The general acceptance of Michaels building products by architects and builders everywhere is the result of our ability to follow implicitly minute details, and faithfully reproduce in metal the most exacting specifications. Then, too, Michaels is well-known for the high quality of its products and dependable service. ¶The partial list at the right will give you an idea of the wide range of Michaels products. It's a distinguished line, made by a concern rated high among the producers of ferrous and nonferrous metal products. Michaels, with seventy-eight years' experience, has much to offer the architect and builder. Whatever building product you need, if it's made of metal, chances are we have it or can make it. Talk over your requirements with our engineers. Upon request we'll be glad to send you complete information on specific products.

MICHAELS PRODUCTS

Bank Screens and Partitions
Welded Bronze Doors
Elevator Doors
Store Fronts
Lettering
Check Desks (standing and wall)
Lamp Standards
Marquises
Tablets and Signs
Name Plates
Astragals (adjustable)
Stair Railings (cast and wrought)
Wrought and Cast Radiator Grilles
Grilles and Wickets
Kick and Push Plates
Push Bars
Cast Thresholds
Extruded Thresholds
MI-CO Parking Meters
Museum Trophy Cases

The MICHAELS ART BRONZE CO., Inc., 234 Scott St., Covington, Ky.

Member of the National Association of Ornamental Nonferrous Metals Manufacturers

THE RECORD REPORTS

(*Continued from page 24*)

Above, entrance to two of the cottages at Keyes Close, Middlesex, Eng., a housing settlement for the elderly. The 34 cottages are arranged around a center quadrangle, have individual gardens to the rear. Below, exit portico to the road

Homes for the Elderly

Thirty-four single story cottages for elderly men and women have been built by the Hornsey Borough Council in Middlesex, England, as part of its post-war housing scheme. Each cottage consists of an entrance lobby, living room with curtained-off bedroom recess, bathroom, and a small but fully equipped kitchen. Lawns and flowerbeds will cover the center quadrangle on which the cottages face, and small gardens at the rear will be cultivated by the tenants. Known as Keyes Close, the development is one of a number of schemes in Britain for the housing of elderly people.

STORE SHOW HELD

The second international Store Modernization Show was held this year at Grand Central Palace, New York City, from July 6th to 10th. In addition to extensive floor displays by well-known manufacturers of the latest equipment and accessories used in store modernization, the Show presented a series of "clinics" or panel discussions on such subjects as store layout and traffic, color and lighting, displays and fixturing, store fronts, and budgeting for modernization. Many top experts on store design and merchandising participated in the discussions. Among them were architects Richard G. Belcher, Victor Bohm, Jose A. Fernandez, Victor D. Gruen, Morris Ketchum, Jr., Morris Lapidus, Elmer A. Lundberg, Daniel

(*Continued on page 164*)

HOW TO MAKE DESIGN ECONOMIES PAY OFF

...Specify Fenestra* Steel Panels

Transit sheds 3, 4 and 5 on Pier A, Long Beach, Cal. Harbor Engineers, Long Beach, Designers. Peter Kiewit & Sons Co., Arcadia, California, Contractor.

DESIGN PROBLEM: How to construct *economically* and with maximum speed and efficiency 26,500 square feet of canopies to shield three large transit sheds.

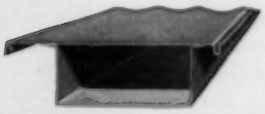
SOLUTION: Selection of Fenestra Type D Building Panels . . . strong and noncombustible . . . engineered for fast construction.

Economies are the natural result of installation speed and simplicity. First, job time is greatly reduced. Second, special skills are not required to put in these precision panels . . . they lock together simply and firmly—ready for a final coat of paint. Fenestra Panels make ideal canopies for stores, piers, factory loading platforms, all similar structures.

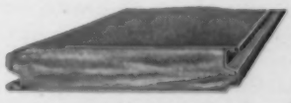
These versatile panels also make sturdy floors for every kind of building. Type D panels can be placed channel side up and flat surface down or vice versa. Or cover plates can be used to provide two flat surfaces. The panels are prime coated, ready for application of concrete, mastic and wood or linoleum, or other surface material of your choice.

Already famous as a producer of steel windows, Fenestra has applied its steel-fabrication skill to the production of these rugged, noncombustible steel panels . . . and has made them ideal not only for floors and ceilings, but for walls, partitions and roofs. See Sweet's Architectural File for 1948 (section 3c-1) or mail the coupon for full information.

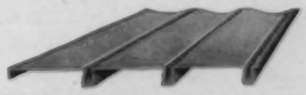
*(Trademark)



TYPE D FOR FLOORS. Box beam formed by welding together two steel sections. Side laps interlock to form continuous flat surface. Standardized in 16" width. Depth 1½" to 9". Gages 18 to 12. Type AD available with two flat surfaces.



TYPE C FOR WALLS. Two metal members pressed together, with felt at each side to prevent metal-to-metal contact. Filled with insulation and closed at the ends, at the factory. Standardized in 3" depth and 16" width, in 18 gage painted steel or 16 B & S gage aluminum.



HOLORIB ROOF DECK. Steel sheets reinforced by three integral triangular ribs on 6" centers. Flat surface for mopped application of insulation and roofing. 18" wide. Lengths to 24' to fit. Gages 18 and 20 are standard.

Fenestra BUILDING PANELS FOR ROOFS WALLS FLOORS

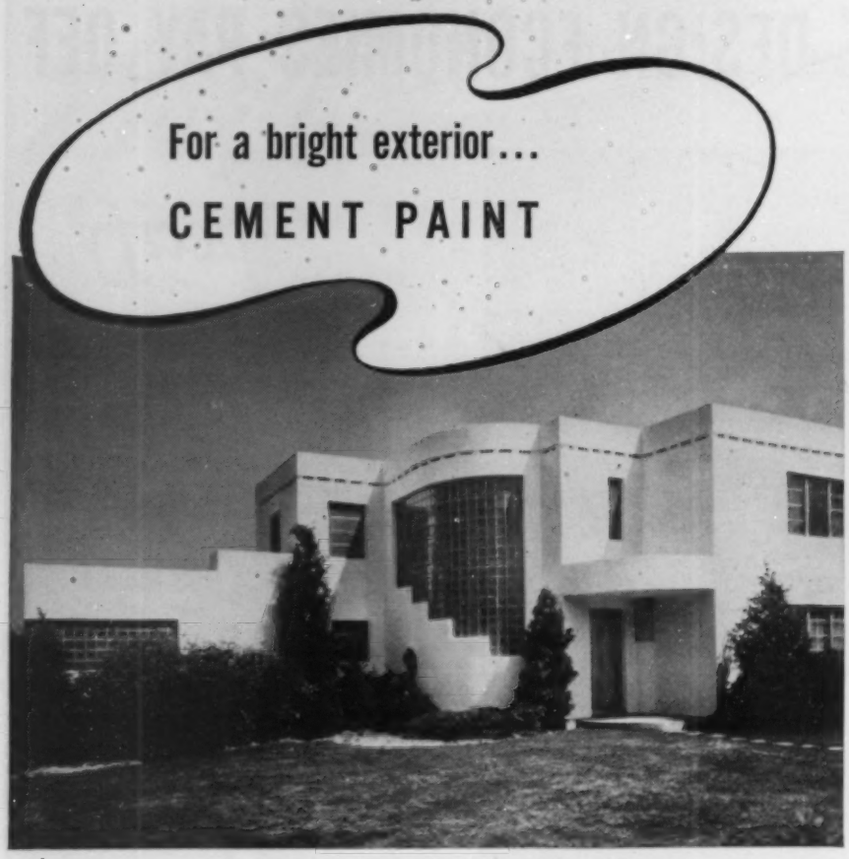
DETROIT STEEL PRODUCTS COMPANY
Building Panels Division
Dept. AR-8, 2252 E. Grand Boulevard
Detroit 11, Michigan

Please send me, without obligation, information on Fenestra Building Panels.

Name_____

Company_____

Address_____



for bright cement paint

...ATLAS WHITE CEMENT

A sparkling finish of factory-prepared portland cement paint made with Atlas White Cement imparts clean, refreshing beauty. And with beauty, there is utility. For, when applied to concrete, concrete masonry, stone, brick or hollow tile, this dependable finish penetrates the pores to form a protective coating that resists moisture, dirt and dust.

Just as Atlas White Cement is used by outstanding paint manufacturers in making portland cement paint, so, too, is it used as a matrix to bring out clearly and permanently the true color values of the pigments and aggregates used in Terrazzo, Stucco and Architectural Concrete Slabs.

Atlas White complies with Federal and ASTM specifications for portland cement. It has the same advantages for concrete and is used in the same way. Atlas White concrete looks clean, fresh and colorful . . . and it cleans easily. Maintenance costs are low.

For further information on the uses of Atlas White Cement, see SWEET'S Catalog, Section 4B/2 and 13B/8, or write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

AR-C-23

FOR BEAUTY AND UTILITY

ATLAS WHITE CEMENT

FOR TERRAZZO, PAINT, SLABS, STUCCO

"THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries*
Sunday Evenings—September to June—ABC Network

THE RECORD REPORTS

(*Continued from page 162*)

Schwartzman, William T. Snaith, and Kenneth C. Welch. The chairman of the panel discussions was Charles M. Edwards, Dean, Graduate School of Retailing, New York University.

The Show was also the scene for the judgment of two recent store design competitions. The first of these was the Store Modernization Show College Competition which called for a design and model of a "Shopping Center of the Future." Fourteen architectural schools and universities submitted solutions. The first prize went to Syracuse University's School of Architecture with a design planned around modernizing a full square block of a Poughkeepsie, New York business district. The senior student design team was composed of E. B. Bruce, D. G. Crounse, and E. R. Shackleton.

The second competition was sponsored by the National Chamber of Commerce and called for the "Best Local Store Modernization" completed between Jan. 1, 1947 and June 1, 1948. The Rifkin and Grammick ladies specialty shop in Trenton, N. J., modernized by Trenton architect Victor Bohm, won first prize. Members of the jury in both competitions were Richard G. Belcher, P. A. Cunnius, Prof. Theodore D. Ellsworth, Jose A. Fernandez, Francis X. Giná, Emerson Goble, Morris Lapidus, Walter McQuade, George Sanderson, Daniel Schwartzman, and E. F. Sibbert.

AT THE COLLEGES

Instructors Needed

Additional instructors in architectural design, structural design and related courses are needed at the schools of architecture for the fall semester, reports Professor Paul Weigel, chairman of the Committee on Employment for the Association of Collegiate Schools of Architecture. Anyone interested in a career in the teaching profession should apply to Prof. Weigel, Kansas State College, Manhattan, Kansas.

New School Proposed

Establishment of a school of architecture by the state of New Jersey, under the auspices of Rutgers University, has been urged by Robert J. L. Cadien, president of the New Jersey Chapter of the A.I.A. and of the New Jersey Society of Architects. Newark would be the preferred location for the school.

Mr. Cadien's proposal followed a report by Marcel Villaneuva, chairman of the Educational Committee of the Society, that complaints had been received from many members of the profession

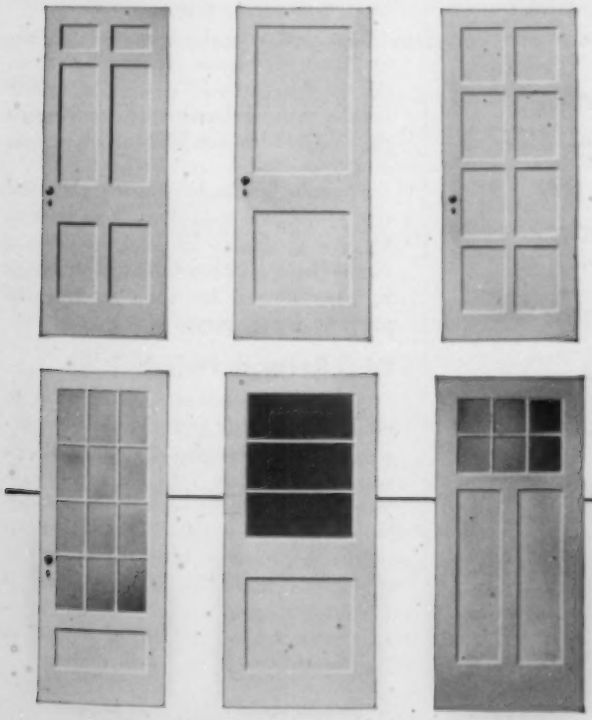
(*Continued on page 166*)

NOW . . . a New CURTIS Achievement

PRESPINE

Through the past 82 years, Curtis has pioneered many an important development in the woodwork field. And today there's a *new* Curtis *"first"*—Curtis Prespine—a new wood product combining unique advantages, and specially designed to be used as an inherent part of Curtis Woodwork, such as door panels, and in kitchen cabinet units and other woodwork.

Like the well-known Silentite Window and other Curtis developments, Prespine is scientifically developed to meet Curtis high-quality standards for fine woodwork. When you know the features of Prespine, you'll know why it is so rapidly making a place for itself in the woodwork world!



Prespine will be used in Curtis Woodwork wherever its use will prove an advantage. Here are shown three Curtis interior doors and three Curtis exterior doors with Prespine panels.

What Curtis PRESPINE *offers YOU today!*

Beauty of Surface—Prespine has a hard, satin-smooth, evenly patterned surface. When unfinished, the color of Prespine closely resembles that of the natural wood from which it is made.

Takes Any Finish—The Prespine surface provides an excellent bond for paint. No grain raising—nothing to cause discoloration. Edges provide better surface to finish. Prespine, too, takes any color stain beautifully.

Lasting Durability—In this Curtis laboratory, Prespine has been boiled for hours—it has been soaked for weeks—it has been subjected to freezing and thawing—and every test has proved its amazing durability. Prespine has the strength to take heavy impact blows—is difficult to mar or scratch—does not chip or splinter at edges. It has superior bending strength—resists warping, shrinking and swelling.

Lifetime Economy—Economical in first cost, Prespine provides lifetime economy for the owners of Curtis products in which it is used. Here is a product worthy of the Curtis tradition of providing lasting value for architect, builder and home-owner.

PLUS the proved advantages of wood! Remember, Prespine is a *wood* product, with the advantages which wood has always offered. In making it, the chemical composition of wood itself has not been changed!

Prespine is available only as used in the production of Curtis Woodwork.

1865 CURTIS WOODWORK PRESPINE

P

Curtis Companies Service Bureau
AR-8P Curtis Building, Clinton, Iowa

Gentlemen:
I want to know more about Prespine as used in Curtis Woodwork. Please send additional information.

*Name*_____

*Address*_____

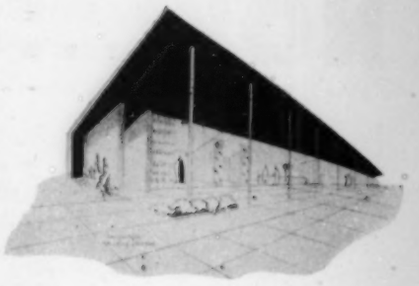
*City*_____ *State*_____

 (*Continued from page 164*)

regarding the caliber of GI graduates of private drafting schools in the Newark area, who, having completed their year's course, are now seeking employment in architectural offices.

A check of the type of instruction given in such schools, the report stated, "disclosed that the courses were not organized or conducted by architects for architects, but to simply produce junior draftsmen with very little architectural background. Despite curriculum deficiencies, however, a still more important fact should be recognized: that is, that any young man after a single year of drafting experience still knows practically nothing, regardless of who his tutor is."

New Jersey, the report continued, at present offers no facilities for architectural students, and the state badly needs an accredited School of architecture recognized by the National Association of Registration Boards. "Except for the very few students able to go to Princeton," it commented, "New Jersey boys have to try their luck in New York or Pennsylvania, mostly in vain."



Richard Nevara's design for a small bank (above) won first prize in the Beaux-Arts Institute of Design competition for architecture students, and Marvin E. Goody's entry (below) was awarded second place

Beaux-Arts Prizes Awarded

Richard Nevara, sophomore in the department of architecture at the Chicago Undergraduate Division of the University of Illinois, was awarded first place in a nation-wide competition for architecture students sponsored by the Beaux-Arts Institute of Design and held at the Navy Pier division of the University of Illinois on June 26. The design problem was a small bank building.

Mr. Nevara's prize-winning entry was an "open air" bank for Arizona, which the judges termed "equally adaptable for any type of climate." It was awarded the annual Kenneth M. Murchison prize of $25.

Second place in the competition, and the Murchison award of $15, went to Marvin E. Goody of the University of Pennsylvania. More than 350 drawings were submitted by students from all parts of the country.

Paint Research Project

A special paint research project to evaluate methods and materials for preparing surfaces before painting has been set up at the New York University College of Engineering under the sponsorship of the Army Signal Corps. Director of the work is Dr. Max Kronstein, research associate and adjunct professor of Chemical Engineering. Dr. Charles Marsel, assistant professor of Chemical Engineering, is associate with him.

Columbia Undertakes Surveys

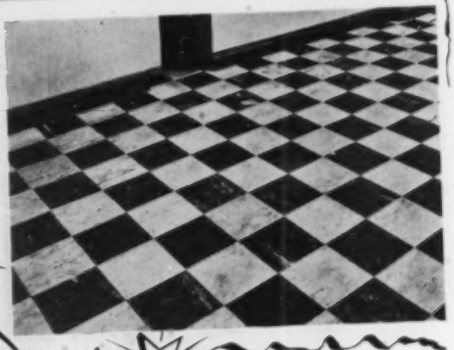
Two hundred Columbia University engineering students are making detailed

(*Continued on page 168*)

THE SENSATION IN FLOORS!

TAILORIZED FLOORS BY FREMONT...

...floors that are stylized to meet every preference... an endless variety of beautiful patterns to match every situation. Every installation can be different.



FREMONT RUBBER TILE AFFORDS ADVANTAGES NOT TO BE HAD IN ANY OTHER!

- DISTINCTIVE, LASTING BEAUTY — Colors go all the way through the tile, can't show wear. Non-fading. Loveliness to be admired throughout the years.
- EASE OF CLEANING — Sweeping or light mopping keeps it spotlessly clean, looking like new.
- SOUND CONDITIONING — Suppresses the sound of noisy, irritating, distracting footsteps.
- COMFORT UNDERFOOT — Cushions every step, lessens fatigue.
- RESISTANCE TO WEAR — Lasts practically forever. Withstands heaviest traffic, denting, scuffing. Burning cigarettes leave no permanent blemish. Grease-resistant.
- SAFETY UNDERFOOT — Great non-slip properties.
- UTMOST SANITATION — No pores to hold dirt.
- VARIETY OF RICH COLORS — Eleven solid and marbleized combinations.
- EASE OF APPLICATION — Lies flat. Cut accurately. Uniform thickness.

FREMONT rubber

It is easy to select or originate a pattern which takes into consideration the elements of room size, location, temperature, lighting, traffic, furnishings, business aims and desired psychological effects.

WRITE FOR FREE DESCRIPTIVE LITERATURE TODAY

FREMONT RUBBER COMPANY

115 McPherson Highway, Fremont, Ohio

STUYVESANT TOWN
(foreground)
and PETER COOPER VILLAGE

IRWIN CLAVAN - *Architect*

STARRETT BROS. & EKEN, INC., *Builders*

In Stuyvesant Town Apartments (as well as in Peter Cooper Village and Riverton, its sister projects) Fabron was used for all lobby wall decoration. As in every income producing, investment type of building, maintenance expense here is an important budgetary factor. Through Fabron, the management will realize important savings in upkeep for many years to come.

THOMAS AIRVIEWS

Metropolitan Life's Stuyvesant Town selected FABRON Wall Coverings for beauty *plus* durability

CONFIDENCE in FABRON's ability to render long range service with greatest economy is indicated by its specification for all lobbies of Stuyvesant Town, the new 8,755 apartment project erected by the Metropolitan Life Insurance Company in mid-town New York.

The desire for infrequent decoration led naturally to FABRON for, as well as being completely washable, FABRON's sunfast lacquer colors will neither scale nor peel. In addition, FABRON's sturdy canvas-plastic backing strengthens the plaster . . . prevents cracks . . . saves on expensive plaster repairs.

FABRON's broad range of colors and patterns (there are more than 180) affords a decorative latitude unmatched by conventional interior finishes. Should a change in decorative scheme be desired (after 10 or 12 years or longer) FABRON will still continue to serve as a permanent wall protective medium. Its sturdy surface provides an ideal base for paint, wallpaper, or another application of FABRON; thus, unlike other wall finishes, its initial investment is not irretrievably lost.

Moreover, FABRON is the only material in the paint or decorative wall covering field whose resistance to fire spread is attested to by the label of the Underwriters' Laboratories, Inc., which appears on every roll.

If you are not familiar with FABRON, write us today on your letter-head or send the coupon below.

fabron

REG. U. S. PAT. OFF.

the canvas-plastic-lacquer wall covering with a life span measured by the decade

•

FREDERIC BLANK & CO., INC.
Established 1913
230 Park Avenue, New York 17, N. Y.

tested Underwriters' Laboratories, Inc. listed
National Board of Fire Underwriters

See our CATALOG in SWEET'S FILE ARCHITECTURAL

FREDERIC BLANK & CO., INC., 230 Park Avenue, New York
Please send us samples of Fabron and information concerning its use in:

☐ Hospitals ☐ Hotels ☐ Schools ☐ Theatres
☐ Restaurants ☐ Offices ☐ Apartments ☐ Residences

Name .....
Address .....
City & Zone ..... State .....

AR 8-48

surveys of the utilities and industrial and civic problems of three Connecticut communities this summer. The results of their studies will be presented to the co-operating communities — Thomaston, Litchfield and Torrington — in the form of detailed reports and specific recommendations for industrial and civic improvement.

The project is being carried out from Camp Columbia, summer camp of the University's School of Engineering at Lakeside, Conn. The students are divided into groups of from 30 to 60 each, and subdivided into teams, each of which is concentrating on a particular phase of community life. Housing, municipal services, water supply and sanitation, communication, and power supplies are some of the subjects being studied.

APARTMENT HOUSE MEDALS FOR 1948 AWARDED

Emery Roth and Louis E. Ordwein, architects, have been awarded the Apartment House Medals for 1948 of the New York Chapter of the American Institute of Architects. The awards were presented at the Chapter's annual lunch on June 2nd.

Mr. Roth's medal was awarded for the apartment house at 300 E. 57th Street, Manhattan, in the "over six stories" group. Mr. Ordwein's was given for the Garden Apartment House on the northeast corner of 72nd Street and Third Avenue, Manhattan, in the group of six stories or under. Each building owner will receive a certificate.

The awards were based on buildings erected within the five boroughs of New York City and completed between October 1, 1940 and October 1, 1947, irrespective of cost, income-group to be housed, or method of financing. The competition was open to all architects of the metropolitan area.

More Than 50% Less Cost
FIRE PROOF - CHIP PROOF - WATER PRO
HASTINGS
Miss Alumitile Says
With beautiful Hastings Alumitile, everyone can now afford attractive wall tile.
"Ladies like Hastings Alumitile because it is so easy to clean — you just wipe with a damp cloth. And it's so beautiful and attractive that it's a 'must' for all homes."
Hastings Alumitile is fireproof, waterproof, chip proof, impervious to alkali, won't crack or peel and resists stain.
For free color chart and the name of your closest distributor, simply mail this coupon today.
METAL TILE PRODUCTS CO. INC.
HASTINGS, MICHIGAN.
In making your plans for restaurants, snack bars, taverns, homes, etc., don't fail to investigate Hastings Alumitile for the wall covering. Available in 14 rich beautiful colors, including outside corners and wall plates for electrical outlets. Virtually unlimited color combinations arranged with Hastings Alumitile. Easy to apply and will last the lifetime of the building.
MAIL THIS COUPON NOW!
Send to METAL TILE PRODUCTS, INC., Hastings, Michigan
Name
Business
Address
City State

OFFICE NOTES

Offices Opened, Reopened

Samuel Juster, Architect, has opened an office at 366 Broadway, New York 13, N. Y.

Alexander Knowlton, Architect, formerly an associate of Edward D. Stone, has announced the opening of offices for the general practice of architecture at 139 E. 53rd St., New York 22, N. Y., and 14 Steamboat Rd., Great Neck, N. Y.

J. C. A. Shepard, Architect, has opened a new office at 3014 E. 12th St., Tulsa, Okla.

New Addresses

The following new addresses have been announced:

Van Evera Bailey, Architect, 543 Prospect Ave., South Pasadena, Calif.

Bates & Rogers Construction Corp., 600 W. Jackson Blvd., Chicago 6, Ill.

Raymond J. Briggs and Associates, 619 Grove St., Boise, Idaho.

Michael DeAngelis, Architect, Cutler Bldg., 42 East Ave., Rochester 4, N. Y.

Henry Dreyfuss, Industrial Designer (New York Office), 4 W. 58th St., New York, N. Y.

Oswald Fischer, Architect, 35-10 Broadway, Long Island City 3, N. Y.

Gaston Gagnier, Architect, 1449 Crescent St., Montreal 25, Canada.

Howard H. Mackey, A.I.A., 1530 You St., N. W., Washington 9, D. C.

Warner-MacNeish, Architectural and Engineering Service, Chamber of Commerce Bldg., 134 Chestnut St., Springfield 3, Mass.

Joseph A. McGinniss, Architectural Specifications, 101 Park Ave., New York 17, N. Y.

Samuel I. Oshiver, R.A., 2128 Locust St., Philadelphia 3, Pa.

M. F. Stern, Architect, 505/506 Diamond House, 29 Parliament St., Cape

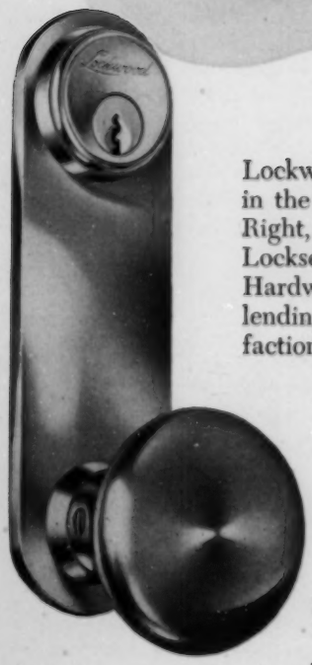
(*Continued on page 170*)

HOW TO SET A STANDARD

Good hardware complements good architecture. Your choice of Lockwood Hardware for every building you design can help to set a pattern by which all your work may be known.

More and more, architects are specifying Lockwood because it *is* good hardware. You'll find ample evidence of this in the way its lines meet your eye . . . in its feel . . . in the very fact that it is designed and produced by Lockwood – a name that means more of the best in Finishing Hardware.

Designed by Joseph J. Sawyer, Architect, for Greensboro News Co.



Lockwood Ambassador Hardware, selected for all doors in the new WIMY building, Greensboro, South Carolina. Right, Ambassador Entrance Set; left, Ambassador Interior Lockset for vestibule and office doors. All Ambassador Hardware applies directly to doors with concealed screws, lending charm to the design and furnishing complete satisfaction in use.

Lockwood makes it easiest for you to specify hardware for every type of building . . . for every decorating or architectural plan . . . from its catalog of "Simplified Specifications." You'll find this in Sweet's for 1948; or write for your own free copy.

Lockwood

HARDWARE MANUFACTURING CO.

L-87A

Division of Independent Lock Company • Fitchburg, Massachusetts

Town, South Africa.

William Charney Vladeck, A.I.A., 660 Madison Ave., New York 21, N. Y.

Charles N. & Selig Whinston, Architects and Engineers, Suite 1939, Grand Central Terminal, New York 17, N. Y.

Walter L. Wimer, Architectural Consulting Engineer, 318 W. Pearl St., Butler, Pa.

New Firms, Firm Changes

The firm of Allen, Koehler, Steffes, Narovec, Architects, was dissolved by mutual consent on May 15, 1948. All unfinished commissions will be completed by Mr. Allen, who will continue to practice under the firm name of Maurey Lee Allen, Architect, with offices in the Zuelke Bldg., Appleton, Wisc.

Roy B. Blass, A.I.A., has announced that he and M. H. Beckman have dissolved their partnership and have closed their firm's branch office in Wilmette, Ill. Mr. Blass will continue to practice architecture and engineering at the main office, 30 N. LaSalle St., Chicago 2.

Norman Bel Geddes, Industrial Designer, has closed his Rockefeller Center, New York, offices. The Norman Bel Geddes Corporation is now located in Stamford, Conn., and Mr. Geddes himself has offices at 350 Park Ave., New York 22.

Don Hatch, Architect, has joined the staff of Ibec Technical Services Corp. as representative in Venezuela.

The firm name of Johnson, Wallwork and Dukehart, Architects, has been discontinued, and the firm's practice is being carried on by John K. Dukehart, A.I.A., Architect, 802 Dekum Bldg., Portland 4, Ore.

Frederick M. Mann, Jr., Architect, and Eugene E. D. Crawford, Architect, have announced the opening of offices under the firm name of Crawford & Mann, Architects, with offices at 134 Eldridge Ave., Mill Valley, Calif.

The firm of Mauran, Russell, Crowell & Mullgardt, Architects, has announced a change of its name to Russell, Crowell, Mullgardt & Schwarz. Members are Ernest John Russell, F.A.I.A., William DeForrest Crowell, A.I.A., W. Oscar Mullgardt, F.A.I.A., and Arthur F. Schwarz, Jr., A.I.A. Offices are at 1620 Chemical Bldg., St. Louis 1, Mo.

Daniel M. Robbins, Architect, has announced the formation of a new firm, Daniel M. Robbins & Associates, with offices in the Kilpatrick Bldg., Omaha, Neb.

Zay Smith, Richard Barry, Norman Steenhof and Taylor Robinson, formerly comprising the design staff of United Air Lines, have announced the formation of their own design firm, Zay Smith Associates, with offices at 431 N. Clark St., Chicago, Ill. The firm has been retained as design consultants to United Air Lines, and will continue to specialize in design for modern transportation, though expanding its activities to include color consultation, store and residential design.

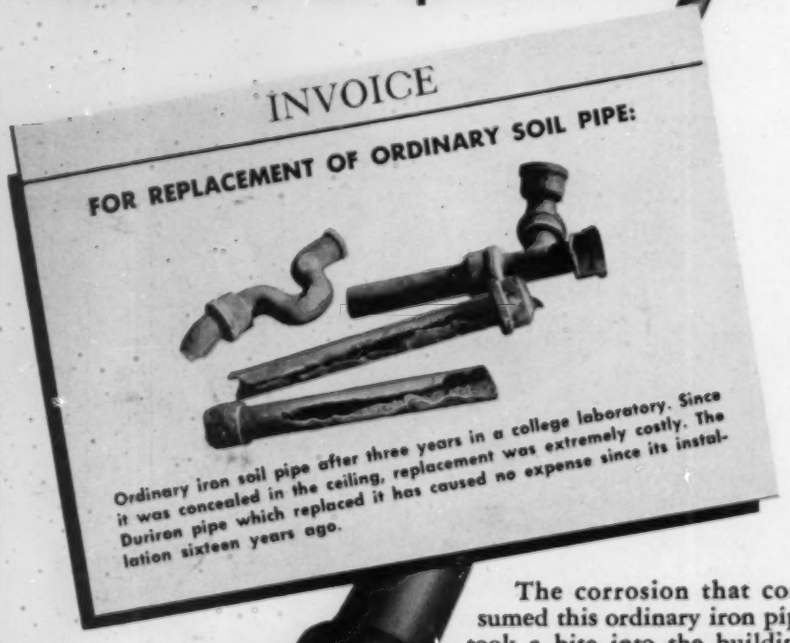
Harry C. Williams has been appointed general sales manager of The H. K. Ferguson Co., Industrial Engineers and Builders, of Cleveland, New York and Houston.

ELECTIONS

Francis Keally, Architect, has been elected president of the Municipal Art Society of New York, to succeed Charles C. Platt, who had held that office for three years. Also elected were: L. Andrew Reinhard, vice president; Irving D. Harris, treasurer; Thomas H. Creighton, secretary; and Samuel H. Ordway, Jr., counsel.

Richard L. Templin, assistant director of research and chief engineer of tests, Aluminum Co. of America, has been elected president of the American Society for Testing Materials.

This REPLACEMENT BILL started in the specification


INVOICE
FOR REPLACEMENT OF ORDINARY SOIL PIPE:
Ordinary iron soil pipe after three years in a college laboratory. Since it was concealed in the ceiling, replacement was extremely costly. The Duriron pipe which replaced it has caused no expense since its installation sixteen years ago.

The corrosion that consumed this ordinary iron pipe took a bite into the building owner's pocketbook. Probably that replacement bill took more than a nibble at his confidence in some architect's judgment.

Stop that replacement cost *now*. Specify Acid Proof Duriron for Chemical Laboratory drain lines . . . and for any other corrosive handling waste system. Duriron simply ignores corrosives. Consult Sweets. Or get complete information by writing for Bulletin 703...today.

THE DURIRON CO., INC. • DAYTON 1, OHIO

Branch Offices in Principal Cities

DURCO Adv. 63-GM

DURIRON
ACID PROOF
DRAIN PIPE

CONCRETE
Frames and Floors
...the answer to lower building costs

By using concrete frame and floor construction with wide, shallow, interior beams in the 11- and 12-story John Lovejoy Elliott Houses (1 of which is shown here), the New York City Housing Authority made big savings in material and formwork.

With reinforced concrete frames and floors you can design durable, firesafe structures within tight cost limits. You can reduce total building height without lowering ceilings. You have unusual freedom in locating columns.

Such construction is ideally adapted to apartment buildings, hotels, hospitals, schools, office buildings and industrial plants. Write for helpful free booklet, *"Continuity in Concrete Building Frames."* Distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION

DEPT. 8-8, 33 W. GRAND AVE., CHICAGO 10, ILL.

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work.

 (*Continued from page 160*)

projects. A few, hardly 100, are building mechanics, but 400 more are expected in the next group of D.P.'s.

Displaced persons who wish to come to Canada must apply through the International Refugee Organization. They are interviewed by special selection teams visiting the German and Austrian D.P. camps and, if accepted, are transported by the I.R.O. to Halifax. They are assigned, to employers who have requested their services, by National Selective Service. The employers take them from Halifax to their jobs.

Each D.P. is guaranteed 10 to 12 months work, and may apply for a change of employer if he finds conditions unsatisfactory. He is advanced to full journeyman status as soon as he learns Canadian speech and methods and may join a trade union in the usual way. On the whole, both employers and unions seem pleased with the tapping of this new source of labor.

For more "Living" room
USE VANISHING DOORS

Same bedroom with single hinged closet door and with parallel sliding doors. Direct access to either half of closet is possible as each sliding door opens to opposite side of door frame. Note added floor space available with sliding doors.

Whether the job calls for tiny kitchenette apartments or a palatial mansion, there's no getting around one fact—hinged doors waste space! That is why more and more residential building plans specify vanishing doors for closets, wardrobes, connecting rooms, etc.

With vanishing doors, sliding from side to side, there's no interference with the location of furniture, lighting fixtures, pictures, rugs—nothing in the room gets "behind the door." Used for closets and wardrobes, they permit direct access to entire contents without fuss or bother.

SPECIFY R-W VANISHING DOOR HANGERS AND WOOD-LINED TRACK

For smooth, silent, trouble-free operation, specify vanishing doors installed with Richards-Wilcox No. 719 Vanishing Door Hanger and Wood-Lined Steel Track. No oiling required . . . hanger wheel has Olite self-lubricating bearing, rolls on self-centering woodtrack lining without metal-to-metal contact.

FOR USE IN 2" x 4" STUDDED WALLS

Richards-Wilcox No. 719 Vanishing Door Hangers and Wood-Lined Steel Track are designed for use in 2" x 4" studded walls. This outstanding feature is made possible by the R-W engineered "Ordinary Wall" pocket.

For complete details—or free consultation without obligation—call or write the nearest Richards-Wilcox office.

1880 RICHARDS WILCOX R-W AURORA 1948
OVER 68 YEARS

Richards-Wilcox Mfg. Co.
"A HANGER FOR ANY DOOR THAT SLIDES"
AURORA, ILLINOIS, U.S.A.

Serviced Land — at Cost

Lots are selling at Toronto's Yorkminister subdivision like the proverbial hot cakes. Why? Because large, completely serviced home sites are offered at bargain prices. The cost of development — installing water mains, hard-surfacing roads, laying storm and sanitary sewers — is included in the price of the land. This represents a break with the practice of levying special assessments on property to pay for improvements.

Comprising 125 acres, Yorkminister is the largest area so far subdivided under the Dominion Government's land assembly scheme. The scheme was made necessary by a shortage of serviced land suitable for housing development on the outskirts of Canadian cities and towns. Projects similar to Yorkminister are under way in Vancouver, Edmonton, St. Boniface, Ottawa, Burlington and Mount Royal. More are being negotiated.

The purpose of the land assembly program is to induce insurance companies and other lending institutions to acquire raw land, subdivide it, install the necessary services and sell lots to private and operative builders. In return, the government guarantees the safety of the institution's investment, plus a 2 per cent return on it. The guarantee period is two years, but may be extended to five. Of course, the institution does not get rich on this basis, but it does get in on the ground floor of some profitable mortgage business.

In the case of Yorkminister, the cost of acquisition and development ran upward of a million dollars. The investment is jointly shared by the Mutual Life and Sun Life Assurance companies. The cost of installing the service was, incidentally, about three times the cost of the raw land.

Yorkminister is a fine example of a completely planned residential subdivision. Space has been provided for parks, playgrounds, schools, apartment houses, a shopping center and service station. There are 403 home sites located on graceful, winding streets. The lots vary in frontage from 50 to 100 ft., the average one having a frontage of 60 ft. and an approximate depth of 130 ft. Prices range from $20 to $30 per foot frontage, or about $10 to $15 less than the asking price for partially-serviced, comparable lots nearby.

It is expected that the houses built in Yorkminister will cost from $8500 up. Adequate restrictions will protect the interests of property owners. Plans and specifications must be approved by the government and the assurance companies. The local building code has to be observed. To eliminate speculation, purchasers of lots must start construction within six months.

KITCHEN planning at its best!

CUSTOM-BUILT to ... any specification
Lustertone stainless ... equipment and sundries
way to provide a sc... with contrasting
boards and work sur...

GUARANTEED
to outlast home in
which it's installed

ELKAY MANUFACTURING COMPANY
1870-H S. 54th Avenue Chicago 50

Lustertone STAINLESS STEEL SINKS

ELKAY . . . since 1920 . . . making the Finest Sinks in Stainless Steel

(*Continued from page 91*)

The afternoon seminar on "Retail Business Buildings," under the chairmanship of Kenneth C. Welch, got down to brass tacks on the subject of "Retail Store Design Principles." James A. Wares discussed the twelve major factors in merchandising methods; Walter C. Wurdeman explained the methods of "Department Store Planning and Design;" and Carl J. Kroepel discussed "Moving Stairways."

A seminar on "Dwellings," L. Morgan Yost, Chairman, dealt with "Regional Qualities in Residential Design." The effects of local and regional climatic conditions, historic regional traditions, local materials, and universally available mass-produced materials entered into the discussion presented by Hugh A. Stubbins, Jr., Henry L. Kamphoefner, D. Kenneth Sargent, and Pietro Belluschi.

The annual dinner was so largely attended that it taxed the facilities of the hotel. It was the occasion for the conferring of Fellowships on the following distinguished architects: Leon Eugene Arnal, Minneapolis, Minn.; Pietro Belluschi, Portland, Ore.; Francis Vaughan Bullfinch, Boston, Mass.; Cameron Clark, New York, N.Y.; George Bain Cummings, Binghamton, N.Y.; Gardner Acton Dailey, San Francisco, Calif.; Paul Gerhardt, Jr., Chicago, Ill.; James Byers Hays, Cleveland, Ohio; Edwin H. Luncie, St. Paul, Minn.; Alexander Edward Hoyle, Boston, Mass.; Francis Keally, New York, N.Y.; George Marshall Martin, Cincinnati, Ohio; Edward Fairfax Neild, Shreveport, La.; Edward Livingston Palmer, Jr., Baltimore, Md.; Robert Barnard O'Connor, New York, N.Y.; Leonard Schultze, New York, N.Y.; Fitzhugh Scott, Milwaukee, Wis.; Philip Lindsley Small, Cleveland, Ohio; Joe Frazer Smith, Memphis, Tenn.; Hart Wood, Honolulu, Hawaii.

High point of the dinner proceedings was the presentation of The Gold Medal of the Institute to Charles Donagh Maginnis, and his response with that inimitable wit and flow of characteristic phrasing which always delights his audience. Then followed an inspiring address on "Architects of Freedom" by Dr. Adam S. Bennion, Vice President of the Utah Power and Light Company.

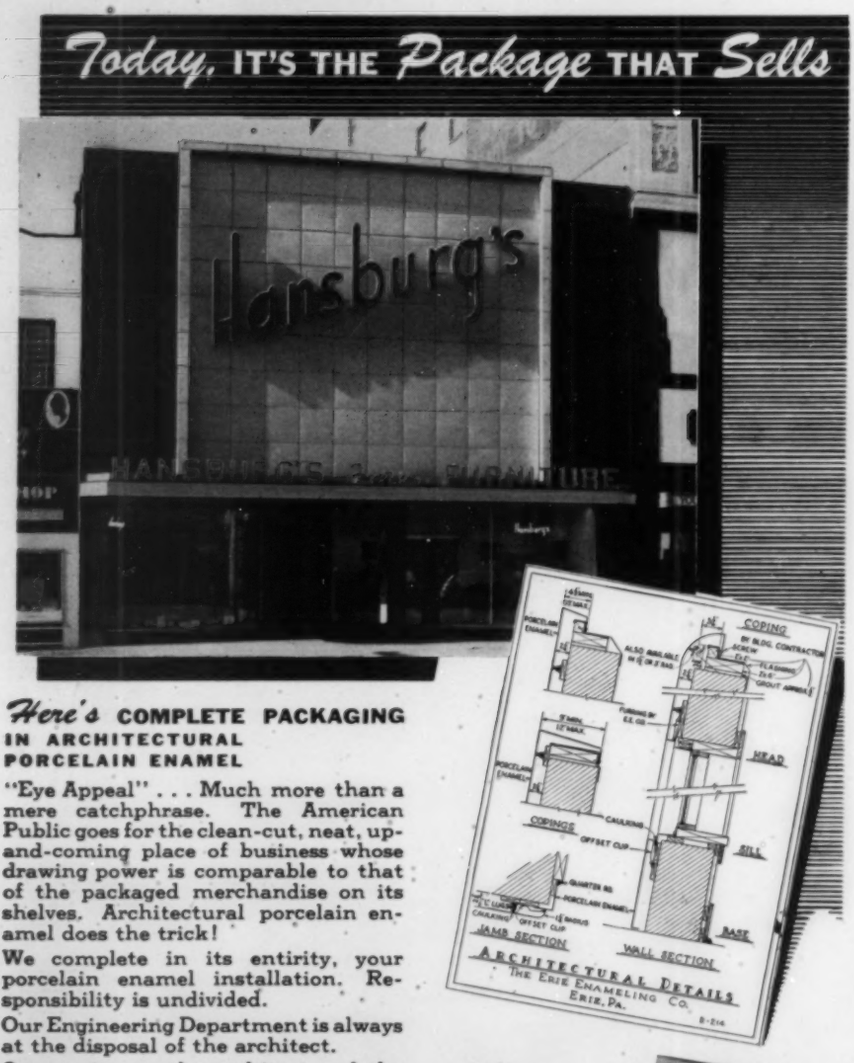
Friday morning began bright and early, 6:30, in fact, with the Convention Caravan wending its way through the canyon to the beautifully situated picnic ground, complete with its outdoor cooking facilities, tables, shelters, shading trees, and running brook. During a delicious breakfast, which always tastes best in a setting such as this, the early risers were regaled with cowboy songs and western ballads.

Returning to the Convention session, the morning seminar lecture on the "Sociology of the Urban Community" was presented by Dr. Louis Wirth, with President Douglas William Orr as moderator. Then followed brief summaries of the seminaries—on Esthetics by B. Kenneth Johnstone, on Urban Planning by Louis Justement, on Dwellings by L. Morgan Yost, and on Retail Business Buildings by Kenneth C. Welch.

A student guest then gave his impression of the Convention. Institute business followed, including the Report of the Committee on Resolutions.

The Convention then adjourned to tour the City, the great Utah Copper Mines, and the Great Salt Lake itself. Few, however, ventured out and into the salt-saturated water.

The post-Convention trips to the National Parks started Saturday morning, but that is another story.



Here's **COMPLETE PACKAGING IN ARCHITECTURAL PORCELAIN ENAMEL**

"Eye Appeal" . . . Much more than a mere catchphrase. The American Public goes for the clean-cut, neat, up-and-coming place of business whose drawing power is comparable to that of the packaged merchandise on its shelves. Architectural porcelain enamel does the trick!

We complete in its entirity, your porcelain enamel installation. Responsibility is undivided.

Our Engineering Department is always at the disposal of the architect.

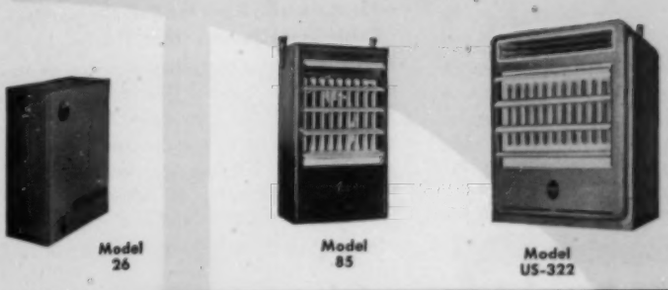
Our services to the architect and the contractor include porcelain enamel engineering and erection for New Construction or Modernizing Store Fronts, Service Stations, Restaurants, Food Stores, Office Buildings, Factory Buildings . . . For complete details . .

see our CATALOG in SWEET'S FILE

WRITE *Today* FOR THIS BULLETIN

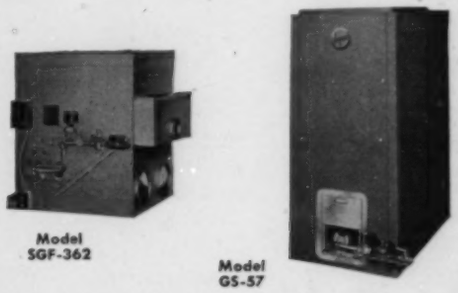
ERIE ENAMELING COMPANY
ERIE, PENNSYLVANIA
Member of Architectural Division Porcelain Enamel Institute.

IT'S BRYANT... ALL ALONG THE LINE!



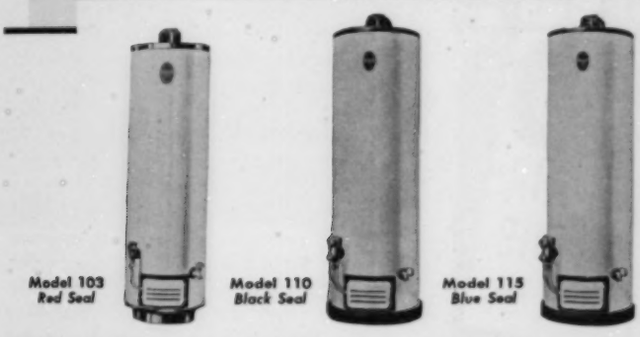
UNIT HEATERS

Bryant Unit Heaters complement the smart interiors of modern stores and offices, adapt themselves readily to factories and warehouses and in other commercial or industrial establishments. Model 85, in five sizes from 65,000 to 255,000 Btu per hour, has tubular steel heating sections; Model US-322, six sizes with inputs from 60,000 to 210,000 Btu per hour, features the *Hevigage* steel heat exchanger.



WARM-AIR HEATING

These Bryant Gravity Warm-air Furnaces are built for budget homes. They include a standard basement model for replacement of old, worn-out furnaces in existing housing or for new, low-cost housing; plus the splendid new Bryant Suspended Gravity Furnace with smooth-running propeller-type fan for use as a central core in small homes. Model GS-57 is made in four sizes, inputs from 70,000 to 140,000 Btu; Model SGF-362 in 55,000 and 70,000 Btu inputs.



WATER HEATERS

Here's the automatic storage water heater line that is taking the country by storm . . . the Bryant *Red Seal,* a standard economy model; the Bryant *Black Seal,* a superior water heater with five exclusive features; and the *Blue Seal,* with the Bryant *Protect-O-Rod*—the water heater that is *built to grow old,* backed by a 10-year protection plan. Bryant Water Heaters offer special burners for each type of gas, are made in 20, 30, 40, 50-gallon sizes.

The most complete line of gas heating equipment in the nation...*at your service!*

Unit for unit, the complete Bryant line of automatic gas heating equipment covers every phase of radiation, convection and conduction heating. It is backed by powerful national advertising, by a great array of tested sales aids; supported by extensive sales and service training activity and a nation-wide distribution and parts service organization set up for easy access by dealer and customer. And it's yours to tie onto . . . for bigger sales, more trouble-free installations and a host of satisfied customers. Let the Bryant distributor in your territory tell you how . . . *now!*

Let the pup be furnace man ... and water boy, too!

bryant

AUTOMATIC HEATING

BRYANT HEATER COMPANY

Cleveland, Ohio

One of the Dresser Industries

LETTERS FROM RECORD READERS

School Classroom Height

With the permission of H. L. Wright, of Kistner, Curtis and Wright, Los Angeles, the RECORD *quotes from a letter of his which bears on a general problem: the occasional conflict between functional scale and psychological scale.*

In publishing the new elementary school at Barstow, California, designed by this firm, the RECORD *(March, 1948, page 137) queried whether the unusual height of the rooms might "result in scale somewhat imposing to small children." Mr. Wright's letter follows.*

EDITOR:

I realize that the high ceilings in school classrooms are not in scale with the pupils and thoroughly believe that a building with lower ceilings presents a better appearance in reference to scale. My only defense for advocating high ceilings is the increase in daylight intensity in classrooms and we feel that the scale should be sacrificed for the best lighting obtainable.

The only time I get into trouble regarding scale is with the architects. The school people with whom I come into contact, without exception, feel the same way I do. Some very competent educators who have studied the problem in this state believe that the height of classrooms is secondary insofar as its effect on the pupils is concerned. The important thing is to scale the furniture and equipment to the student.

Of course, heating and ventilating in Southern California do not present any particular problem because of our mild climate. I realize that the cubage of the building is a factor to be considered where heating and ventilating are of primary consideration.

— H. L. WRIGHT
Los Angeles

DO YOU SPEND HEATING DOLLARS TO HEAT THE CEILING?
SPECIFY GRID
THAT GIVES YOU WARM AIR IN GREATER VOLUME AT THE WORKING LEVEL—
GRID

GRID Unit Heaters are designed for low outlet temperatures and more air delivery to the floor line—not the ceiling.

This means a saving in the fuel bill, while assuring warm comfortable air to the working areas. Only by eliminating stratification of warm air at ceiling level can you get the ultimate from your heating dollar.

Don't be confused by unit heaters offering great BTU delivery and high outlet temperatures; you may be heating your ceiling. BTU in a unit heater does not mean everything . . . it's the CFM and low outlet temperature that really count. If you want to save on your fuel bill, install GRID this heating season.

HIGH TEST CAST IRON HEATING SECTIONS

GRID heating sections are one piece construction high test cast iron—the metal for permanency . . . no electrolysis because there are no dissimilar metals used in GRID construction. Hence, no maintenance expense—but years of trouble-free heating service.

Write for complete details, capacity tables and engineering data to:

D.J. MURRAY MANUFACTURING CO. WAUSAU WISCONSIN

"Architects Anonymous"

EDITOR:

I wish to state that your lead-off article in the July issue of the ARCHITECTURAL RECORD, "Architects Anonymous," certainly hit the nail on the head. As you already know, I happen to be one chap who broke through from being just another designer in another office via competition.

I feel that the architectural magazines are doing the profession a great good by trying to instigate more and more competitions. It is the only hope for the younger man to be able to gain recognition and perhaps also to obtain the commission for a job. It is obvious in this profession that until you are well along the row (that is to say into your 40's) it is almost impossible for a younger architect or firm of architects to obtain large work. Once again the competition is the only means.

I think it would be of interest to the magazine to dig into the status of government, state and city work pre First World War. As I recall, all government, state and city work was first to be open competition and that during and immediately after the First World War pressure was brought to bear and public competitions were left to the discretion of the city, state and federal governments. I remember this because of something my father said to me right after he came back from the First World War: "Now youth is going to have a tough time, as their means of getting recognition has been wiped out." I pass this along. I think it might be of interest to the magazine as a follow-up to your "Architects Anonymous."

— CALEB HORNBOSTEL
New York City

A UTILITY SHOWER *For The Basement*

NOW WITH CEMENT RECEPTOR
In 2 sizes: 32 x 32 x 76
36 x 36 x 80
White baked enamel aluminum walls. Concrete receptor or steel receptor. Chrome plated drain. Shower head. Dual shower valves. Available with glass door—or curtain rod and curtain.

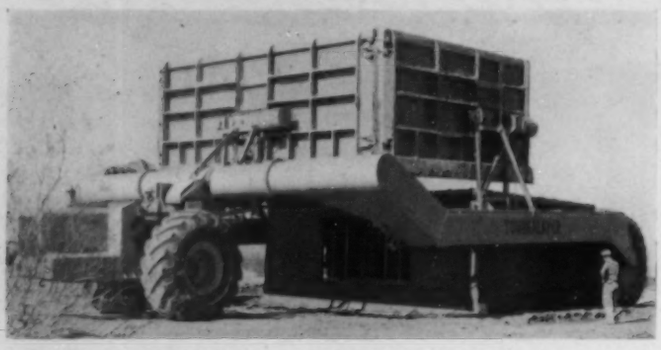
A REAL profit-getter in shower cabinets! Tiletone's Model 45 is designed for those who want a truly low cost cabinet, combining utility with lasting durability. Model 45 comes in two sizes to fit any space requirement. Ideal for basement installation—summer cottages—clubs—farms. Wherever economy plus durability is desired, Tiletone's Model 45 meets the need.

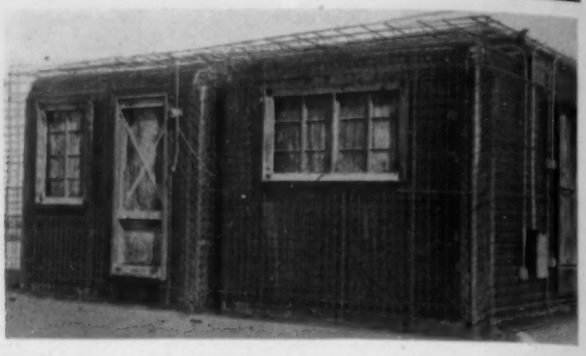
MODEL 45 TILETONE *Shower Cabinet*

TILETONE COMPANY • 2323 WAYNE AVENUE • CHICAGO 14, ILLINOIS

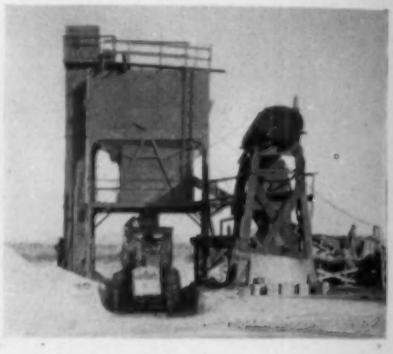
ON THE JOB WITH TOURNALAYER

At Muroc Air Force Base
Lake Muroc, Calif.





Above: left, the Tournalayer pulls away after positioning monolithic unit on the site; right, fixtures are installed on inner form before pouring operations begin



A 25-cu.-yd. Nobel batch bin, with 3-yd. weigh hopper is used at Muroc for batching of pumice aggregate. Bin is fed by bucket-type conveyor running from nearby stockpile. Tournamixer drives directly under the hopper to receive its load

At the Muroc Air Force Base, Lake Muroc, Calif., a hundred double-unit dwellings for Air Force personnel and their families are being erected by the Tournalayer method developed by R. G. LeTourneau, Inc. Contractor for the project is the Wm. Radkovich Co. of Los Angeles.

Two sizes of house forms are used for each of the double units. One form monolithically casts a basic unit of a house 32 ft. 8 in. by 24 ft. in size, with a longitudinal center partition, while a smaller form casts in one piece a structure measuring 18 ft. 8 in. by 24 ft. Each unit is picked up and carried by a Tournalayer to the housing area, where it is set 7 ft. apart from its component. The two sections are then joined with a conventionally constructed corridor, 7 ft. long and 16 ft. wide. This portion is further tied by pneumatically applied mortar or gunite.

(*Continued on page 182*)

MURPHY-CABRANETTE KITCHENS

PORCELAIN ON STEEL

You'll recognize tenant-appeal in the front of gleaming white porcelain . . . in the convenience of modern refrigeration with push-button door and stainless steel frozen food compartment, with modern gas or electric range, with roomy upper storage cabinets and with the large deep bowl sink in the one-piece top of porcelain . . . all skillfully streamlined into one compact unit.

You'll value the saving in valuable floor space that is practical with any Murphy-Cabranette Kitchen.

You'll be long satisfied with the trouble-free operation and almost negligible maintenance costs.

DWYER PRODUCTS CORPORATION
Dept. F7 — MICHIGAN CITY, INDIANA

AS ADVERTISED IN TIME MAGAZINE

How to Answer
TIME-Readers' Questions About "Sky-Glo"

"Sky-Glo" is such a great forward step in lighting that you'd better be primed with answers to the questions you'll be asked. Here are a few. The rest are in the new free 28-page "Sky-Glo" Bulletin. Use the coupon for your copy.

"Sky-Glo" is the only nationally advertised luminous louvered lighting system. Benjamin developed and introduced "Sky-Glo" and there will be no other "exactly like 'Sky-Glo'." This distinctive and continuous "ceiling of light" has been thoroughly tested by the Benjamin Testing and Development Laboratory.

Made to Order for the Store Remodeling Boom!

"Sky-Glo" fits directly into the national trend toward interior modernization. No other single improvement can do as much for a store, office, schoolroom, bank, lobby or public building. Yet "Sky-Glo" actually costs less than many commonplace false ceilings.

Luminous Louvers

Unlike wood or metal slat louvers, "Sky-Glo" is TRANSLUCENT; has light transmission factor of 71 per cent. It is made of non-flammable thermoplastic Vinylite, product of Bakelite Corp.

Durable

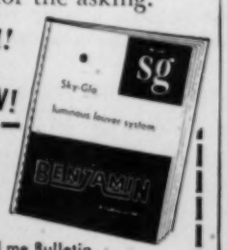
"Sky-Glo" luminous louver panels will not discolor or become brittle with age. They will not warp or distort under prevailing room temperatures.

Stays Beautiful

The mat finish of "Sky-Glo" does not easily collect dirt, is kept sightly by occasional maintenance.

. . . The rest of the story about the first luminous louvered ceiling is in the new free "Sky-Glo" "SG" Bulletin, yours for the asking.

Be Informed!
MAIL COUPON NOW!



BENJAMIN ELECTRIC MFG. CO.,
Dept. Q-1, Des Plaines, Illinois

Gentlemen: Without cost or obligation please send me Bulletin "SG" with complete data on Benjamin "Sky-Glo."

Name.....

Firm.....

Address.....

City..... Zone..... State.....

a NEW experience in Seeing..
more light, but **without** glare!

Use "Sky-Glo" to modernize your store or office! Conceal Outmoded Ceilings, Eliminate Extensive Alterations!

OFFICE Workers respond to "Sky-Glo's" eye-ease. Error and fatigue decrease, visitors are favorably impressed.

STORE "Sky-Glo" modernizes any interior, yet calls attention to the merchandise rather than to itself.

SCHOOL Better health, better energy application, better learning, easier teaching, come with "Sky-Glo".

From the translucent* "Sky-Glo" ceiling comes 75 to 125 footcandles of even, restful, shadow-free light, like the open sky—with no feeling of harsh brilliance! It's a new KIND of light from a new KIND of ceiling—a glorious all-over glow which quickly and economically modernizes any interior. This ceiling of light hides sprinklers, ducts and overhead unsightliness. It eliminates need for a "forest of fixtures" usually required to attain high lighting levels. Yet "Sky-Glo" costs less than many conventional false ceiling installations.

Mail Coupon for "Sky-Glo" Bulletin

Standard louvered "Sky-Glo" sections compose into handsome geometric patterns. They are hung readily, they fit any room shape and adapt on the job to pilasters and vertical piping. Rigid "Sky-Glo" is fire-safe, will not distort or discolor under normal room conditions. ***Send coupon for informative folder.***

**Unlike wood or metal slat louvers, "Sky-Glo" both transmits and reflects light. Made of Vinylite, product of Bakelite Corp.*

BENJAMIN
"Sky-Glo"
LUMINOUS LOUVERED LIGHTING SYSTEM

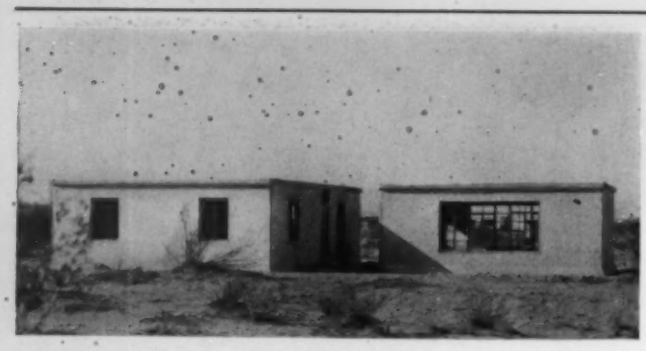
Product of Benjamin Electric Mfg. Co., Des Plaines, Illinois, The Nation's Largest Manufacturer of Lighting Equipment — Established 1901 — Makers of a complete line of lighting equipment for Industrial, Commercial, Play-Area & Utilitarian Requirements. Distributed Exclusively Through Electrical Wholesalers.

Benjamin Electric Mfg. Co., Dept. Q1, Des Plaines, Ill.
Gentlemen: Without cost or obligation please send "Sky-Glo" Bulletin to:
(Write name, firm and address in margin below)

E-2900

ON THE JOB WITH TOURNALAYER

(Continued from page 180)

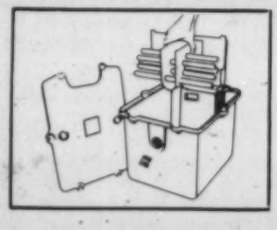


Left: two sizes of house forms are used for each double unit at Muroc, the two delivered to the site by Tournalayer and set 7 ft. apart; a conventionally constructed corridor joins them. Above: an overhanging eave "dresses up" a duplex unit

Q. *What can you find in the New Wade Catalog that you can't find anywhere else?*

A. *PLENTY!* - for example:

THE **HYDRAFILTER** FIRST *and* ONLY *double-acting GREASE INTERCEPTOR*



TRAPS GREASE 2 WAYS — *by new hydraulic filtering plus conventional gravity separation*

EASIEST TO CLEAN — *has lightweight aluminum cover and quickly removable filter unit*

TRIPLE VENTED — *for installation in any situation — cannot siphon — meets all codes*

Complete selection tables for a full range of HydraFilter sizes, plus dimensions, weights and prices, are just a few of the features found only in the New Wade Catalog. It's full of technical and practical information to help solve all sorts of drainage problems. If you have not yet received a copy, drop us a line today, telling us how many you would like.

WADE
MANUFACTURING COMPANY
ELGIN, Illinois
Makers of Fine Drains and Plumbing Specialties Since 1865

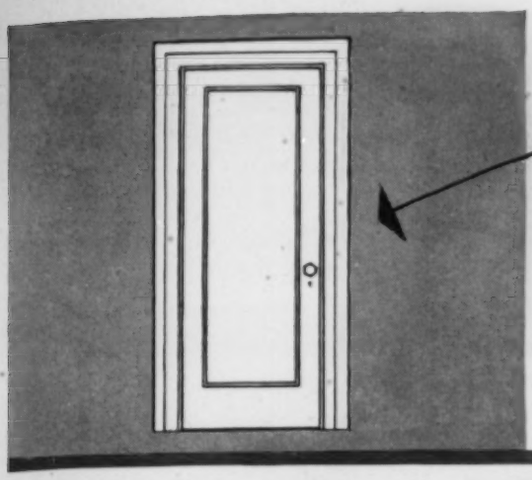
Tournalayer-built home in Los Angeles

Each unit has two bedrooms, a large living room, kitchen, dining room, bathroom and service porch. Regimentation of design is avoided by employing separate patterns in rigging forms, varying facing, and multi-color combinations in painting. The houses are air conditioned, and the pumice aggregate used in their structure provides insulation.

All houses are poured and formed at a central operating point on the Muroc project, and require only 16 hours before positioning on final sites. Pours on the large units are completed in an hour and a half, and on the smaller units in 45 minutes.

Steel frame windows are inserted upon the wall of the inner house form. These frames are 1 in. in thickness and are mounted on a tapered steel buck which is necessary to fill out the full 5 in. of wall. The bucks are removed after the house is cast, leaving the 1-in. frame imbedded in the concrete.

Part of a housing development at Corpus Christi, Texas, built by Tournalayer method



The single panel Ponderosa Pine door shown here is only one of many types. Ponderosa Pine doors are correctly proportioned—precision manufactured for easy installation and satisfactory service. These single panel doors are also furnished with hardwood panels. For illustrations of Ponderosa Pine doors, see our booklet "Today's Idea House."

SCOPE FOR *You* — SAVINGS FOR THE OWNER!

THERE'S an extra benefit for you—and for the owner—when you specify stock design doors of Ponderosa Pine. For you, there's greater scope in planning, because Ponderosa Pine doors are made in such a wide variety of types—including panel doors, mirror doors, Dutch doors and French doors. Second, the owner reaps the economy of the modern mass-production methods by which these doors are produced.

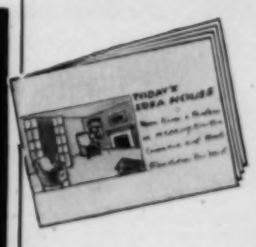
One of the most workable of woods, Ponderosa Pine provides enduring value when used for doors and windows. It is smooth-grained, and the grain will not raise. It sands to a satiny texture and is easy to paint or stain. And remember, both Ponderosa Pine doors and windows are obtainable toxic preservative treated.

A booklet worth having is "Today's Idea House"—full of photographs showing actual installations of Ponderosa Pine doors and windows. Send today for your free copy.

For Friendly Living..

Ponderosa Pine

WOODWORK



Ponderosa Pine Woodwork
Dept. RAR-8, 38 South Dearborn Street
Chicago 3, Illinois

Please send me a copy of "Today's Idea House." (Please print)

Name .....

Address .....

City ..... *Zone* ..... *State* .....

(*Continued from page 151*)

ment house service, the Barton is described as ideal for laundries, hotels, private clubs, school dormitories and hospitals. Barton Mfg. Co., Kalamazoo, Mich.

RAILING FITTING

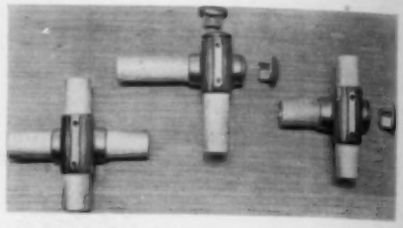
An aluminum alloy fitting for pipe railings has been developed which is said to simplify the construction and consequently reduce costs of pipe railings of all descriptions by eliminating welding of joints, cutting and threading of pipe and tapping on both pipe and fittings.

The *Nu-Rail Slip-On Fitting* fits over the pipe and engages it by means of hollow point screws in place of conventional threaded pipe and fittings.

Simplicity of design, featuring an "eccentric cross," permits the pipes to cross each other without interference; by means of drive caps the "cross" may also be used as an elbow or a tee.

Experiments were said to reveal promising uses in scaffolding of all descriptions and in the construction of railings and pipe racks of all types.

Laboratory tests, using a 6 in. lever arm, were said to indicate the ability of the fitting to carry weight up to 2800 lb. per fitting without slippage of the hollow point screws. The Hollaender Mfg. Co., 3841 Spring Grove Ave., Cincinnati 23, Ohio.



Above and below: slip-on fitting for pipe railings eliminates welding and threading

PLASTIC SURFACED PLYWOOD

Paper-plastic surfacing of plywood is said to result in three major improvements: (1) increased tensile and flexural strengths; (2) a lower rate of moisture absorption; and (3) an excellent surface for subsequent painting and finishing. In addition it is claimed to minimize checking difficulties, resist temperature extremes, weathering, abrasion and to be non-splintering.

Included in the variety of applications are table tops, counters and as workbenches in stores, factories and plant cafeterias.

As a concrete form material, paper-plastic surfaced plywood is described as being extremely economical and serviceable. It can be re-used many times and will strip easier, clean faster and demand little oil or oiling labor, according to the manufacturer. Plywood forms have already been used on large housing projects where they are said to produce very smooth surfaced concrete slabs.

This new structural material, known as *Kimpreg*, consists of special paper stock impregnated with *Bakelite* resins which is laid with the glue spread ply-

(*Continued on page 186*)

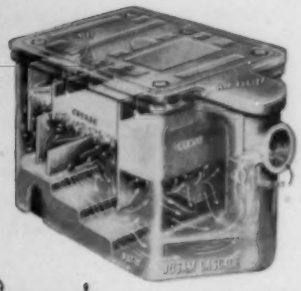
For the bright, efficient kitchen that will complete your plans for that modern house . . . for the practical beauty you need for that office building still on the drawing board . . . plan on Marlite plastic-finished wall and ceiling panels.

For any room, in any building – wherever practical beauty is required – Marlite colors and patterns provide the sparkling, colorful beauty and economical practicality that appeals to every client and simplifies your specification problems. See the new Marsh catalog in Sweet's File, Architectural, for complete details on Marlite wall-size panels, Marsh Mouldings, Marsh Bathroom Accessories and other Marsh products that help you do a better job. Marsh Wall Products, Inc., 805 Main Street, Dover, Ohio.

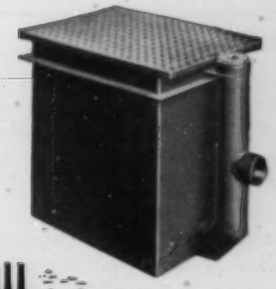
Marlite
PLASTIC-FINISHED
WALL PANELS

for Creating Beautiful Interiors

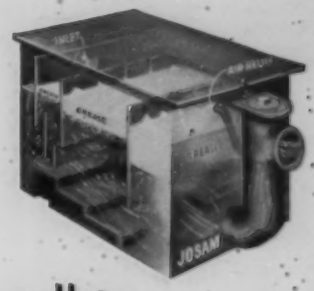
Marlite, Marsh Mouldings, Marlite Polish, Marsh Bathroom Accessories, Marsh C-100 Caulking, Marsh C-200 and C-300 Adhesive, Marsh C-400 Household Adhesive



Series "J" Grease Interceptor. All cast iron for Domestic and Commercial Service, capacity up to 40 GPM; for installation on floor or recessed in floor.



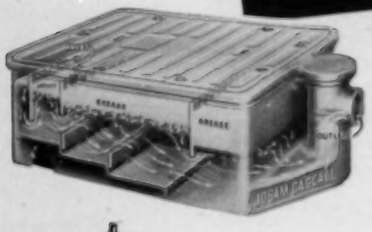
Series "JP" and "JR" Grease Interceptor. All steel for Commercial and Industrial Service, capacity up to 150 GPM; for installation recessed in floor.



Series "JN" Grease Interceptor. All steel for Commercial and Industrial Service, capacity up to 150 GPM; for installation on floor.

WHEN THE PROBLEM IS GREASE

THE ANSWER IS Josam CASCADE GREASE INTERCEPTORS

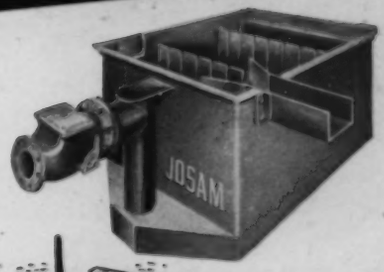


Series "JL" Grease Interceptor. All cast iron for Dishwasher Service, capacities to 30 GPM; for installation on floor or recessed in floor.

Josam

FLOW CONTROL
Guarantees
MAXIMUM GREASE INTERCEPTOR EFFICIENCY

A controlled rate of flow to the interceptor is necessary to assure 90% or more grease interceptor efficiency. For this reason, a Josam Flow Control which governs the rate of flow is furnished with every Josam Interceptor.



Series "PH" Grease Interceptor. All steel with skimming valve and skimming trough for Packing House and Industrial Plant Service, capacity up to 1000 GPM.

The plumbing drainage system of a building is only as good as its pipe lines. And when the pipe lines fail to function properly, every activity in the building can be interrupted. A common cause of pipe line trouble is *GREASE* . . . because *GREASE* in waste water builds up, layer upon layer, on the inside of the drain lines until it eventually clogs the pipes.

In homes, restaurants, hospitals, hotels and schools where GREASE is a by-product of cooking; in industrial plants, rendering plants and packing houses where GREASE and fats are a costly hazard . . . Josam GREASE INTERCEPTORS eliminate this hazard completely. Josam makes a type and size for every purpose, complying with local code regulations everywhere. For complete protection against GREASE clogged waste lines, rely on JOSAM GREASE INTERCEPTORS. Their cost is so little compared to the permanent protection they provide.

Josam STANDARD OF THE WORLD

Josam Manufacturing Co.

Main Sales Offices, Josam Bldg., Cleveland 13, Ohio
Manufacturing Division, Michigan City, Ind.
Representatives in all Principal Cities
JOSAM-PACIFIC CO., San Francisco, California
West Coast Distributors
EMPIRE BRASS COMPANY, LTD., London, Ontario
Canadian Distributors
See the Josam Inserts in Sweets'

Josam Mfg. Co., 302 Josam Bldg., Cleveland 13, Ohio
Please send me Josam Manual "A" on Grease Interception

Name.....

Firm.....

Address.....

City.....State.....

(*Continued from page 184*)

wood veneer assembly in a conventional plywood hot press, curing both the plastic-paper and internal glue bonds. Kimberly-Clark Corp., Neenah, Wis.

FIVE-ROOM COTTAGE

A complete five-room cottage designed for the Armstrong Cork Co. demonstrates that a very attractive home can be built on a small budget and shows the versatility of the use of the company's interior coverings.

The keynote of the cottage, designed by Hazel Dell Brown of Armstrong's Bureau of Interior Decoration in collaboration with William E. Huber, A.I.A., is the reported utilization of every inch of space. Careful planning permits the house, which is only 23 by 25 ft. overall, to have such luxury features as a fireplace, nursery and a dressing room.

The decorative scheme of the house includes use of linoleum floors throughout. Linoleum has many other uses in the house as well, such as providing a smooth top for the lavatory and dressing table in the bathroom and the work surfaces and table in the kitchen.

The ceilings are all of *Temlock*, a decorative insulation board, and the walls of the bathroom and kitchen are covered with *Linowall*, a smooth wall covering.

Budget house has luxury features such as a fireplace, nursery and dressing room

To supplement the model design, preliminary sketch plans of the cottage have been prepared for distribution along with a booklet in full color. (10¢) The sketch plans are not complete blueprints, but they do explain in some detail the ideas incorporated in the design and give additional suggestions in decorating the house. Armstrong Cork Co., Lancaster, Pa.

CARPET HANDLING EQUIPMENT

The former difficult, unwieldy tasks of lifting, storing and cutting broadloom carpet have been minimized with the inception of completely mechanized handling equipment for department stores called *The Cradle System*.

Once a roll of broadloom is in the receiving room, whether boxed or wrapped in burlap, it is conveyed to the cutting floor by a traveling crane. There mechanical means are provided to roll the carpet out of the box onto a cradle which rests on a cutting table. If wrapped in burlap the broadloom is held by slings and deposited directly onto the cradle.

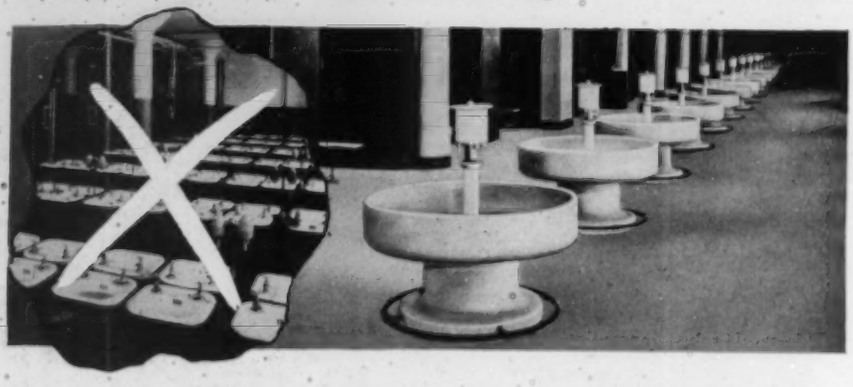
The whole cutting table is then lifted and moved to an open storage compartment where the cradle, being completely independent of the table, travels on ball-bearing wheels to steel channels of the compartments.

When a roll of broadloom is taken out of storage, the crane moves a cutting table to the level of a compartment and the loaded cradle slides easily onto the cutting table. The crane then deposits the table on the floor where the cutter wants it.

The Cradle System eliminates costly

(*Continued on page 188*)

HOW TO SOLVE—
Employee Washing Problems



1. USE BRADLEY WASHFOUNTAINS

One Bradley group Washfountain serves 8 to 10 persons simultaneously — comfortably and quickly with maximum sanitation and health protection. Foot-control keeps hands free from contagious infections while the self-flushing bowl prevents contaminating dirt collections. One Bradley eliminates from 16 to 20 faucets and reduces piping connections by 80%.

2. USE BRADLEY DUOS for Office and Executive Personnel

One Bradley DUO-Washfountain takes the place of two conventional basins with the one DUO sprayhead replacing four ordinary faucets. In addition, the self-flushing bowl and automatic foot-control reduce maintenance and afford maximum sanitation. Further details can be secured by writing for DUO Bulletin 464-D.

BRADLEY washfountains

BRADLEY WASHFOUNTAIN CO.
2227 W. MICHIGAN STREET, MILWAUKEE 1, WISCONSIN

BEAUTIFUL, DEPENDABLE NAUGAHYDE

All the advantages of the finest plastic, PLUS the benefits from a rugged fabric backing to prevent bagging, splitting and opened seams.

61 colors and finishes to fit any color scheme desired; all scuffproof, fadeproof, truly wear-resistant.

Manufacturers' note: We furnish booklet tags and ribbons to identify U. S. Naugahyde on your products—use them for full tie-in benefits from our national advertising.

U.S. Naugahyde®

THE FINEST IN PLASTIC UPHOLSTERY

Distributors in principal cities

Made only by

U.S. RUBBER
SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

COATED FABRICS DIVISION—MISHAWAKA, INDIANA

(*Continued from page 186*)

aisles and creates profitable storage capacity from floor to ceiling.

Installations are of various sizes and types to serve the needs of the small retailer as well as the large.

The crane has four point suspension and its movements up, down and sideways are minutely controlled with an electrical push button system.

Compartments and cradles are numbered which simplifies stock control records. Any roll of broadloom whether 18, 20 or 30 in. diameter or from 9 to 18 ft. in length is lifted, stored or moved with equal ease for cutting or matching service. Textile Handling Equipment Co., 817 South Western Ave., Los Angeles, Calif.

FLOOR SAFE

Steel floor safes have been designed in three models for home, business and industrial uses.

The *Deluxe Floor Safe* is described as affording maximum protection against the double threat of fire and theft. The body of the safe is cylindrical in shape, made of 1 in. non-rustable steel. Removable heads are hardened, drill-proof, chrome nickel steel. The floor safe employs the use of two separate relocking devices, each working independently of the other; the safe automatically locks from the inside when an attempt is made to force it open. H & W Specialties Co., 532 Broadway, Toledo 4, Ohio.

Floor safe uses two relocking devices

LIGHTING CALCULATOR

A pocket-size *Calcu-light-or* for rapid illumination calculations has recently been developed by Westinghouse Electric Corp. Of slide-rule design, the Calcu-light-or is said to include all of the technical information necessary to make illumination calculations by either the "lumen" or the "point-by-point" methods. It is reported that no regular slide rule is required with its use, nor additional tables or charts for the lumen-method. A distribution curve is required for point-by-point calculations. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

BACTERICIDAL LAMP

A new instant start bactericidal lamp is said to emit more than twice as much ultra-violet radiation as any lamp heretofore available. The lamp is 36 in. long and may be operated at three different levels of intensity. Glass used for the lamp is described as having remarkable resistance to solarization, an opaquing effect that reduced the amount of ultra-violet radiation former lamps were able to emit. Westinghouse Electric Corp., Lamp Div., Bloomfield, N. J.

BASEBOARD HEATING UNIT

A baseboard heating unit has recently been designed with a heating capacity of 600 Btu per hour per lineal foot with 170° F forced water circulation.

The heating core of *Rittling Baseboard* consists of continuous copper tubing

(*Continued on page 190*)

STYLES CHANGE-
but not Quality
IN KEWAUNEE LABORATORY FURNITURE

Kewaunee 1908 Design Chemical Desk with Fume Hood

Kewaunee 1948 Design Chemistry Desk with latest design Fume Hood

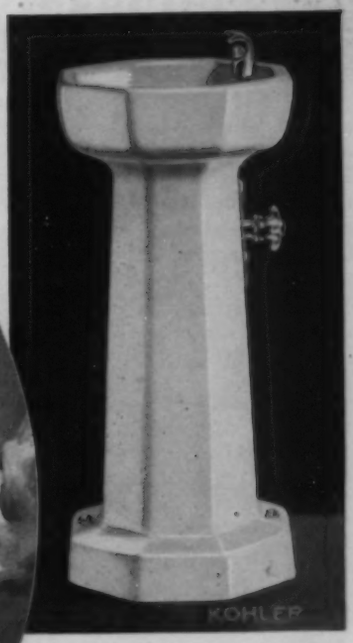
There's no mistaking the old and the new by their appearance. But make no mistake about quality, because Kewaunee quality is the common denominator of both. Fine quality that never changes.

Kewaunee Laboratory Furniture is designed to be completely functional . . . to give maximum efficiency and work-saving convenience. Ruggedly built in our own plants, to stand up under years of hard use. All Kewaunee Metal Furniture is now our new heavier construction. Bonderized for protection against chipping, rusting and corrosion. KemROCK working surfaces defiantly resist acids, alkalies, solvents and physical shock. Yet Kewaunee Laboratory Furniture is priced to fit tight budgets.

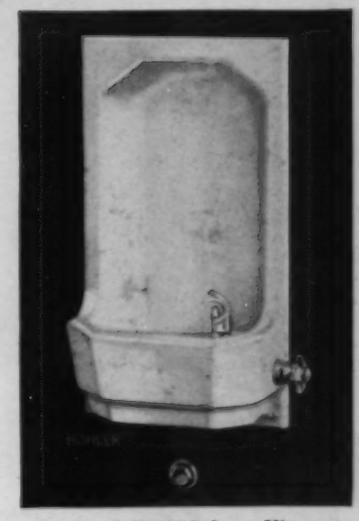
So why not check into *all* of Kewaunee's advantages? Write today for your free copy of Kewaunee's latest catalog of Laboratory Furniture.

Kewaunee Mfg. Co.
C. G. Campbell, President
5046 S. Center St. Adrian, Michigan
Representatives in Principal Cities

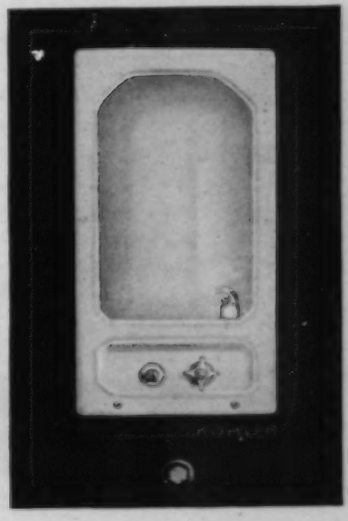
Daybrook K-5335-A Vitreous china, wall-hanging type. Size of bowl, 14 x 10".



Carlsbrook K-5300-A Vitreous china pedestal type. Height, 30". Diameter of bowl, 13¼".



Glenbrook K-5325-A Vitreous china semi-recessed type. Height, 26¼", Width, 14¾". Recess depth, 4½". Projection from wall, 6¾".



KOHLER DRINKING FOUNTAINS
assure sanitary protection and convenience

KOHLER quality in drinking fountains is apparent in a number of important features. Each fountain delivers water in a mound that has the angle and volume recognized as most effective for sanitation and comfort. A self-closing control valve is adjustable for continuous flow, and an automatic volume regulator keeps the drinking mound at the correct height and shape under varying pressures. A metal guard prevents contact of lips with jet opening.

Kohler fountains protect against back siphonage or water contamination —and all attempts at mischievous squirting are instantly defeated, for when water is checked at the jet opening it flows into the bowl below. The vitreous china surfaces are lustrous, durable and easy to keep clean. Kohler models include pedestal, recessed or semi-recessed, and wall-hanging types, some of which are shown. They all assure lasting serviceability and satisfaction. Write for information: Kohler Co., Dept. 24-B, Kohler, Wisconsin.

Vanbrook K-5331-A Vitreous china fully-recessed type. Height, 30". Width, 16½". Inside depth, 10".

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS

(*Continued from page 188*)

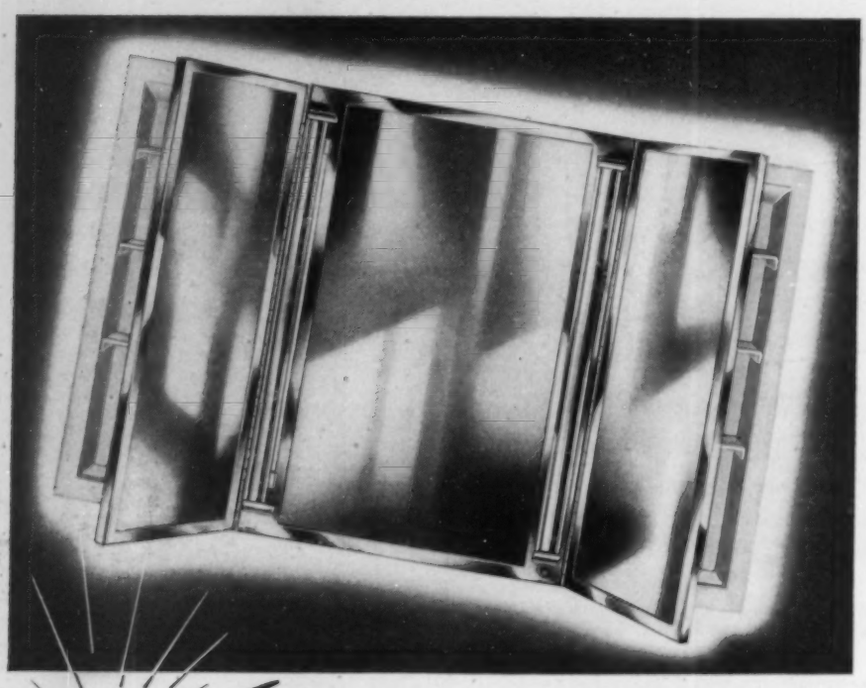
with aluminum fins. The entire unit is covered by a decorative, heavy gauge sheet steel, grilled warm air outlet and deflector. This method of construction is said to assure complete rigidity throughout the assembly. The cover can be removed easily for cleaning the unit.

The baseboard units require no recessing and can be installed either before or after floors are laid by means of simple wall brackets and fittings.

The tube and fin assembly is furnished in standard lengths of 2, 3, 5 and 9 ft. and can be joined by compression or sweat fittings.

The front metal cover is supplied in 6 ft. lengths which can be readily cut off for exact fitting. A joining piece is provided to assure neat cover appearance.

End caps have been designed for either right or left extremities and also as a 90 degree corner piece. The Rittling Corp., 1292–98 Niagara St., Buffalo 13, N. Y.



Your own ideas polished up!

IT WILL SURPRISE YOU how well your own ideas have been polished up—and how completely they have been incorporated in the designs of the whole Parker Line of bathroom cabinets and accessories. Years of experience have developed Parker's ability to see eye-to-eye with architects in style and utility... just as working with builders has influenced Parker's strict standards of materials and workmanship to meet extreme usage requirements. See the complete line in Sweet's, or send for the new Parker Catalog. The Charles Parker Company, Meriden, Connecticut.

Above: No. 7004 Lumiline or Fluorescent Light Cabinet with Side Cabinets.

No. 215 Tumbler and Tooth Brush Holder

No. 210 Soap Holder

PARKER

BATHROOM CABINETS AND ACCESSORIES

PLEXIGLAS JALOUSIES

Decorative from inside as well as out, *Plexiglas* jalousies, resembling venetian blinds in appearance and function, have been designed to serve also as awnings and storm shutters. Installed on porches or in outside door and window frames, their louvers are opened, closed or adjusted to any angle for exact control of ventilation.

Their protective function is reported being proved at exposed seashore locations and hurricane areas. Because of the strength, flexibility and impact resistance of Plexiglas, these Plexiglas jalousies are claimed to be virtually unbreakable, even standing the wind and flying debris engendered by tropical storms.

Plexiglas jalousies in a variety of colors serve as awnings and storm shutters

Since the basic material is made in a complete range of colors, the jalousies may be tied in with the color scheme of the house. Where privacy is one of their functions, they are often made up in white translucent Plexiglas. Where protection and control of ventilation are the only requisites, they can be made of clear material as transparent as optical glass, and said to transmit ultra-violet rays.

Other advantages claimed include their extremely light weight, freedom from warping, surface checking, discoloration and shrinkage. Tropical Awning Shutter Co., Miami, Fla.; Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.

CEILING TILE

Ceiling tile is now being made of treated "hardboard" backed with insulation material and sprayed with paint at 200° F. The resulting satin finish is reported not to chip or craze and to be cleaned easily with a damp cloth.

An important advantage of *Roxdale Ceiling Tile* is its tongue-and-groove design which is said to assure accurate and rapid interlocking of the tiles. An overlapping tongue is claimed to prevent marring by inexperienced labor during installation.

(*Continued on page 192*)

Heat, Ventilate and Air-Condition with...

MULTI-VENT

The Only Air Diffusion System You Can't Feel
Can't Hear
Can't See

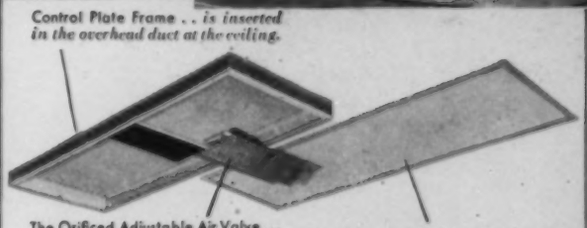
Multi-Vent panels completely concealed by metal acoustical ceiling in The Columbus Mutual Life Insurance Co. Building, Columbus, Ohio. Air conditioned throughout with Multi-Vent. Consulting engineer, Samuel R. Lewis. Installed by Columbus Heating & Ventilating Co.

MULTI-VENT is the only air diffusion system you can't feel because *only* Multi-Vent's exclusively patented total displacement valve and large perforated distribution plate can provide the very low velocity and widespread air delivery necessary to completely eliminate drafts and the subtle, annoying sensations of draft, i. e. uneven room temperatures.

MULTI-VENT is an air diffusion system you can't hear, because Multi-Vent's recommended duct velocities and air volume requirements are so low that no audible friction noise is generated by the entering air. In addition, the sound absorption qualities of the perforated distribution plates actually reduces the noise level in any room.

MULTI-VENT is the only air diffusion system you can't see, because only Multi-Vent can be completely concealed above the square perforated pans in a *metal* acoustical ceiling. Multi-Vent panels can also be lined up with the creases in *fiber* acoustical ceilings for almost complete concealment. In all other types of installation, with exposed or concealed ducts, Multi-Vent panels are less conspicuous than diffusers of any other make.

MULTI-VENT, moreover, is by far the most *effective* and *efficient* air diffuser on the market today! Accurate tests show that Multi-Vent's low velocity air delivery makes possible the use of much higher diffusion temperature differences without affecting the room occupants' comfort. This in turn greatly reduces the air volume usually required to take care of a given load . . . thereby not only making possible substantial reductions in the tonnage of the basic air conditioning equipment, but also adding greatly to the comfort factor. The result is truly superb comfort. *No drafts . . . no sound of rushing air . . . no protruding ventilating fixtures.* Write for Bulletin for complete information and specifications.


Control Plate Frame . . . is inserted in the overhead duct at the ceiling.
The Orificed Adjustable Air Valve . . . provides absolute displacement of static head . . . May be set for varying volume and velocities of air as desired by occupant. Individual panel adjustments can be made without disturbing over-all balance of system.
The Perforated Distribution Plate (or Metal Acoustical Pans) . . . of large area accomplishes wide, gentle, uniform spread and dilution of conditioned air and simultaneously provides panel-heating and cooling.

SIMPLE TO INSTALL • QUICK TO BALANCE • EASY TO CLEAN

THE PYLE-NATIONAL COMPANY

MULTI-VENT DIVISION—1375 WEST 37th STREET, CHICAGO 9, ILLINOIS

Offices: New York • Philadelphia • Baltimore • Washington, D. C. • Cleveland • Cincinnati • Columbus, Ohio • Detroit • St. Louis
Kansas City • Omaha • Minneapolis • Denver • Salt Lake City • San Francisco • Greensboro, N. C. • Grand Rapids, Mich. • Winter Park, Fla.
Canadian Agent: F. W. Chambers and Co., Ltd., West Toronto 5

SINCE 1897

CONDUIT FITTINGS • PLUGS and RECEPTACLES • TURBO-GENERATORS • LOCOMOTIVE HEADLIGHTS • FLOODLIGHTS

(*Continued from page 190*)

The tile measures 12 by 12 in., is ⅝ in. thick, and is available in four colors — light blue, peach, ivory and white. A border strip in the same colors, 4 by 24 in. is also provided. National Tileboard Corp., New York 16, N. Y.

ALUMINUM ROOFING

Corrugated aluminum sheet is now available for use as roofing and siding on industrial buildings of every type.

The weight of this new 0.032-in. corrugated sheet is 56 lbs. per 100 sq. ft. and is produced with a corrugation depth of ⅞ in. The deep corrugation is said to give the material a distinct advantage over smaller depth types because of the added rigidity and strength. Reynold Metals Co., 2500 So. 3rd St., Louisville, Ky.

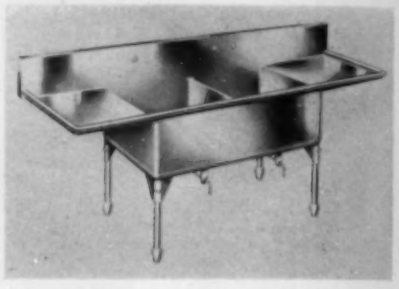
STAINLESS STEEL SINKS

A complete line of round-corner, welded stainless steel sinks in 16 standard sizes has recently been introduced to meet the growing need for sanitary kitchen equipment.

These standard units, known as *Value Line* stainless steel sinks, are available with one, two or three compartments. Each sink may be obtained with two drainboards, drainboard on either right or left side, or without drainboard.

Features include the use of 18-8 stainless steel, fully rounded corners and coves, integral rolled edges and welded seamless surfaces.

A patented lever-handle waste outlet which opens or shuts the valve has been designed to eliminate the necessity of reaching through the contents of the sink to get at the drain. S. Blickman, Inc., Weehawken, N. J.



Stainless steel kitchen sinks available with one, two or three compartments

DRAINAGE PRODUCTS

A full line of ready to use stainless steel roof drainage products is now being produced by the Republic Steel Corp.

Items in the line include "K" gutter, plain round, corrugated round and corrugated square conductor pipe.

The drainage equipment is fabricated from satin-finish, 28-gage Enduro stainless steel. Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio.

DOOR OPERATORS

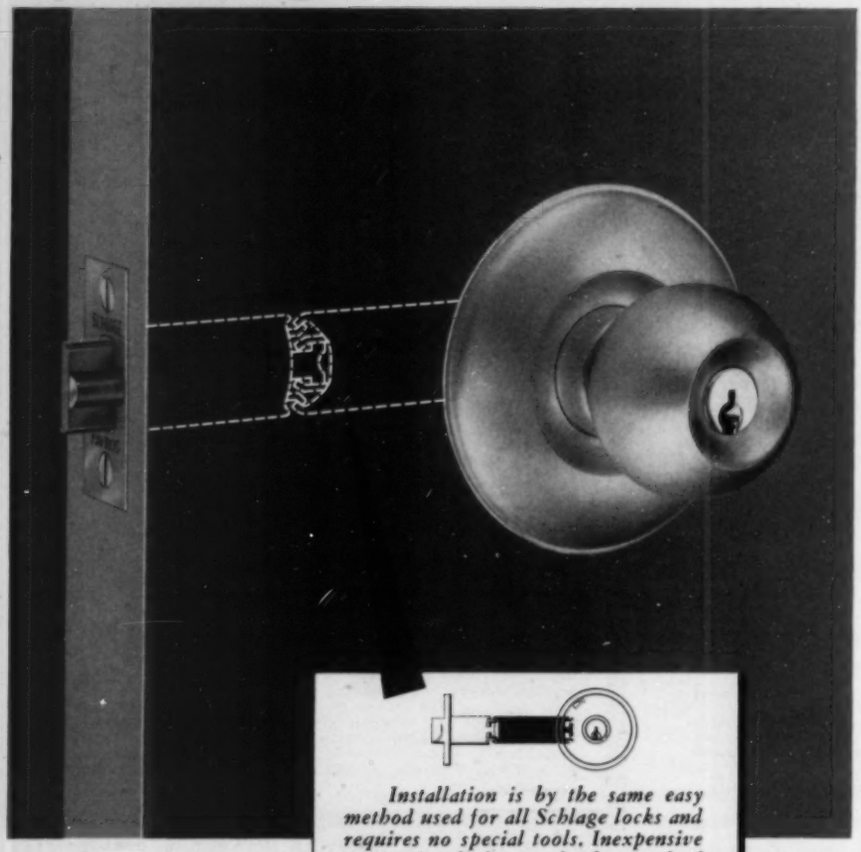
Y-M Electric Door Operators are again available for new and replacement installations on commercial and residential doors. These door operators can be used on overhead, sliding, folding, rolling or swinging doors. The instant stop safety feature is claimed to automatically stop doors on contact, thus preventing personal injury and property damage. Yoder-Morris, Inc., 5914 Merrill Ave., Cleveland 2, Ohio.

SCAFFOLD

A time-saving scaffold is made possible with a new type pump scaffold bracket. The entire platform, with men and materials, rides up or down on any 4-by-4. A simple brace holds it rigidly upright. The pump operates and safety locks automatically; it has no separate parts and requires no ropes, hooks or nails. The scaffold is held to the beams by means of pumps employing three

(*Continued on page 194*)

Schlage 5" Backset



Installation is by the same easy method used for all Schlage locks and requires no special tools. Inexpensive connecting link extends the standard Schlage lock to the 5" position.

A new dimension in Lock Placement

Schlage's exclusive 5" backset allows knobs and escutcheons to be installed away from the conventional "jammed-in" position near the edge of door. This new dimension results in greater convenience and balanced appearance. It also allows, for the first time, the use of large decorative escutcheons.

See Schlage in Sweets Architectural File

SCHLAGE LOCK COMPANY
SAN FRANCISCO NEW YORK

ORIGINATORS OF THE CYLINDRICAL LOCK

This is the Wakefield *STAR*

Des. Pat. 148,191

. . . with the PLASKON Reflector that Insures UNIFORM LIGHT DISTRIBUTION

Modern artificial lighting strives for two objectives: first, an even distribution of light intensity, and second, the elimination of brightness contrasts. The Star utilizes a molded translucent Plaskon reflector of such density that the lighted luminaire is of approximately the same brightness as the illuminated ceiling. When Star units are used in continuous runs, spaced in accordance with Wakefield engineering specifications, uniform distribution of light is secured, with no deep shadows or sharp contrasts and without distracting glare from the light source.

MINIMUM REQUIREMENTS

The following table sets up the minimum requirements:

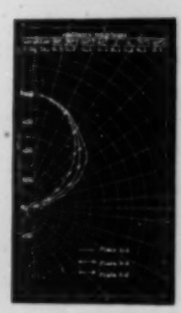
CONTINUOUS ROW INSTALLATIONS

	Room Index A	Large Rm. 48′ x 96′	Room Index D	Med. Room 24′ x 38′	Room Index G	Small Rm. 12′ x 24′
Spacing	No. Rows	Fcs.	No. Rows	Fcs.	No. Rows	Fcs.
4′ 0″	12 of 22*	79	6 of 10*	58	3 of 5*	43
4′ 4″	11 of 22	72				
4′ 9″	10 of 22	66	5 of 10	48		
5′ 3″	9 of 22	59				
6′ 0″	8 of 22	52	4 of 10	38	2 of 5	29
6′ 9″	7 of 22	46				
8′ 0″	6 of 22	39	3 of 10	23		

* Units per row.

Easily Installed and Maintained—Each 4′ Star section utilizes two 40W fluorescent lamps which are accessible from the top of the reflector. The Plaskon reflectors and end caps are light in weight, non-electrostatic, non-shatterable, non-combustible and are readily slid in and out for maintenance purposes without dissassembly of the line. All visible metal parts are finished in satin aluminum.

The Star may be used singly in corridors or small rooms, or mounted in continuous rows. Continuous runs may be obtained from jobbers' stocks of bodies, reflectors, stems and end caps. Single units have twin suspension. Detailed installation instructions accompany each assembly.



Photometric Chart

Impartial tests by electrical testing laboratories to determine the candlepower efficiency of THE STAR in various planes have been plotted as a curve which demonstrates what may be expected from this unit. Data showing the estimated footcandles in service on various spacing arrangements are available. For further details, consult Sweet's File or write to

THE F. W. WAKEFIELD BRASS COMPANY
Vermilion, Ohio.

Wakefield Over-ALL Lighting

FOR OFFICE • DRAFTING ROOM • STORE AND SCHOOL

THE GRENADIER II — THE GRENADIER IV — THE COMMODORE — THE DIPLOMAT

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 192*)

grips. This provides more than normal safety as any one of the grips is designed to hold the scaffold under normal weight. The pumps accommodate a 24 in. scaffold and can be adjusted to 12 or 18 in. scaffolds. Newark Ladder and Bracket Co., Inc., Clark (Rahway), N. J.

PLASTIC UPHOLSTERY

Described as conveying a three-dimensional effect, is the new texture in Duran plastic upholstery, *Alpine*. This Duran covering is said to embody the features of easy washability, pliancy and resistance to wear, scuffing and fading.

Alpine comes in the full Duran color line from pastels to deep tones. The Masland Duraleather Co., Amber and Willard Sts., Philadelphia 34, Pa.

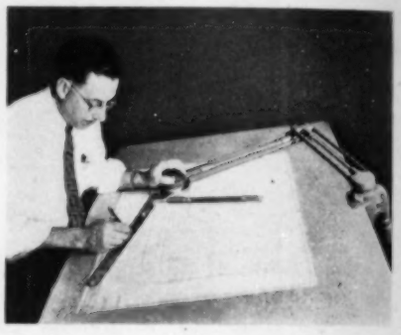
CABINET LOCK

The Yale "3-way cabinet lock" has a patented cylinder that permits the lock to be adapted to any one of three uses. It can be used either as a drawer lock with the bolt moving vertically or as a cabinet and cupboard lock for either right hand or left hand doors, with the bolt moving horizontally.

In order to convert the lock to right- or left-hand operation, the cylinder can be rotated by releasing a small catch on the cylinder housing. The Yale & Towne Mfg. Co., Chrysler Bldg., New York 17, N. Y.

DRAFTING MACHINE

An outstanding feature of the improved Standard and Civil Engineer's Drafting Machines made by the Charles Bruning Co. is the *Equipoise* mechanism which is said to insure accurate alignment at all times on an inclined drawing board. Even though the board may be inclined as much as 20° from the horizontal, the accurate alignment is reported maintained.



Drafting machine features Equipoise mechanism to provide accurate alignment

Other new features include a revised protractor head assembly, a relocated and redesigned base line setting device for locking the protractor index point to any angle, and increased distance between clamp screws holding the drafting machine securely and rigidly to the drawing board. Charles Bruning Co., Inc., 4754 Montrose Ave., Chicago 41.

KITCHEN EQUIPMENT

New models of Kelvinator ranges and refrigerators adhere to standard modules of floor space. All new ranges are 39 in. wide, and all refrigerators, regardless of capacity, are 31¼ in. wide.

Masterpiece refrigerators provide 8½ cu. ft. within the shelf area plus approximately two more cu. ft. in a refrigerated "fruit freshener." Home freezers, with 6 cu. ft. capacity, are 39 in. wide.

The ranges have all controls on the back panel and are designed for flush-to-the-wall installation. Kelvinator Division, Nash-Kelvinator Corp., Detroit 32, Mich.

NON-METALLIC CABLE

A new non-metallic sheathed cable has been designed to withstand weather

(*Continued on page 196*)

Amtico RUBBER FLOORING

ADDS 7 NEW, STRIKING COLORS

WHITE AND BLUE
True permanent white, lightly marbleized with blue.

WHITE AND BLACK
Tracings of black on a true white field.

WHITE AND GREEN
Permanent white, veined with a delicate sea-green.

TUSCANY RED
A deep red mottled with white, black and gray.

AMERICAN BEAUTY
A clear, cool red illuminated with white.

RESEDA GREEN
Soft gray-green, marbled with faint markings of white.

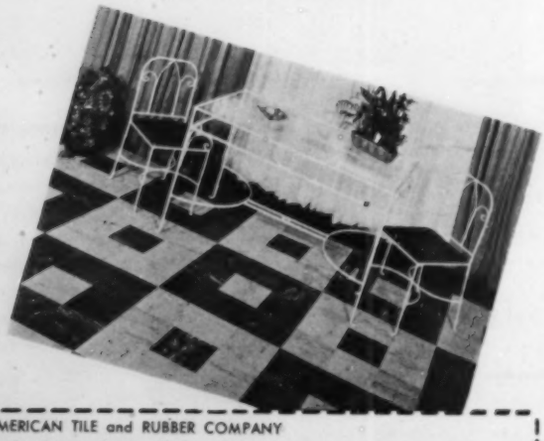
COLONIAL BLUE
Rich grayed blue, variated with tones of lighter blue.

These seven new marbleized colors are an addition to the Amtico line of Rubber Flooring, which now includes eighteen beautiful colors. Architects and interior decorators can now plan striking contrasts or harmonious blendings with the decor of beautifully appointed rooms.

Amtico Rubber Tile, "America's Most Beautiful Rubber Flooring," is a luxury only in appearance, since its lovely and long-wearing quality brings the cost down below less permanent flooring material.

Remember, "Amtico" is quiet, long-wearing and easy underfoot. Cigarette burns and stains leave no permanent blemishes.

Send for free samples



AMERICAN TILE and RUBBER COMPANY
Perrine Avenue, Trenton 2, New Jersey

Please send me samples and literature showing Amtico Rubber Flooring in full color.

NAME.....

ADDRESS.....

AMERICAN TILE & RUBBER CO. • TRENTON, N. J.
Makers of Quality Rubber Flooring for over 30 years.

ROCKLATH* LOCKED TO CHANNELS WITH... NEW

BRACE-TITE LATHING SYSTEM

for Suspended Ceilings

Here's the new system for suspended ceiling construction that gives you a similar type of rigidity to that provided by nail-on ROCKLATH plaster base. It's adaptable, economical, easy to install, and locks like a screen door hook!

An exclusive development of U·S·G research, the BRACE-TITE Lathing System requires only standard tools, and does not require special training of lathers or plasterers. Standard channels, hot or cold-rolled, and conventional 12-inch or 16-inch spacing are used. U·S·G provides all the materials for the complete BRACE-TITE System... U·S·G has sole product responsibility.

BRACE-TITE is an economical system, because the material cost is low—installation expense is held to a minimum.

This suspended ceiling system requires just ½ inch of plaster—applied in just two coats! You can double back! The assembly will be strengthened, because it's wire reinforced with BRACE-TITE Field Clips.

Ask your U·S·G representative about the BRACE-TITE Lathing System next time you see him . . . and be sure to request a copy of the new BRACE-TITE folder.

*T. M. Reg. U. S. Pat. Off. for a USG plaster base

United States Gypsum, Chicago 6

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint

LOOK-One Hand!
A.W. Faber's quick-action
(black or colored)
LOCKTITE
refill drawing pencil
works with a flip of
the thumb
A.W. FABER-CASTELL
S.A. 9400 2H
1). Patented collet to hold lead in bull-dog grip.
2). One-hand clutch operation to avoid touching lead and smearing fingers.
These are but two exclusive features which make LOCKTITE the favorite of professional men. Collet prevents lead breaking or slipping. Try this clean, balanced, sturdy mechanical beauty and you will surely want to own it.
Holds all standard graded drawing or retouching leads. Winner Techno-TONE No. 1930 assures best results.
ALSO AVAILABLE IN RED, BLUE, GREEN, YELLOW, CARMINE, ORANGE and WHITE —holding hardy WINNER Techno-TONE crayon leads for coloring, sketching and checking.
BLACK in degrees 4B to 9H.
Sold at Stationers', art and drawing supply stores, photo supply shops and Blueprinters.
GUARANTEED OF COURSE!
A.W. FABER-CASTELL
PENCIL COMPANY INC., NEWARK 4, N.J.

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 194*)

extremes, fumes, corrosive vapors and fungi. The cable's conductors are encased in thermoplastic insulation which is then wrapped in paper, glass braid and finally a thermoplastic sheath. General Electric Appliance and Merchandise Dept., Bridgeport 2, Conn.

AUTOMATIC BURNER

A compact winter air conditioning furnace is available in the *Quiet Automatic Unit*. The furnace, blower, humidifier and casing are all assembled for oil or gas operation and included is an electrical control or relay. Four sizes are available: 70,000, 90,000, 155,000 and 200,000 Btu output. Quiet Automatic Burner Corp., Newark 4, N. J.

WALL COVERING

Tru-Grain wall coverings feature 21 different patterns reproduced from woodgrains and marbles. Covered with a layer of cellulose plastic, they are said to be impervious to stain, water resistant, scuff proof and fade proof.

The coverings can be used for wallpaper, table tops, floor coverings, fireplace panels and lampshades. The Ullman Co., 319 McKibbin St., Brooklyn 6, N. Y.

MULTI-FUEL FURNACE

A new multi-fuel furnace, in sizes small enough for a five-room house and large enough for the average ten-room house, is said to operate efficiently either hand-fired, stoker-fired, or with conversion oil or gas burners.

The unit is complete with slow speed centrifugal blower, heavy duty motor, variable speed drives and filters.

The new furnace is available in sizes from 105,000 Btu to 172,700 Btu at the bonnet. Gravity models from 88,150 Btu to 154,200 Btu are also available. Stokol Stoker Co., Indianapolis, Ind.

METAL DOORS, FRAMES

Metal doors and frames for residential, commercial and public buildings are being manufactured by a continuously roll-formed process which is said to produce precision not readily obtainable by conventional methods. On the list of products to be manufactured by the American Steel Door Co. are standardized metal door and frame units of swing, double-acting and sliding closet types. American Steel Door Co., Detroit, Mich.

FLOOR TILE

Durability and flexibility are the qualities attributed to a new plastic asbestos floor tile called *Permalite*.

(*Continued on page 198*)

Syracuse Parish Enjoys Modern Steam Heat

CHURCH OF THE MOST HOLY ROSARY, Syracuse, N. Y., N. H. LaVaute, Architect. M. B. Moyer, Consulting Engineer. Modernized 1946 with Webster Moderator System of Steam Heating. Joseph Burke, Heating Contractor. Hillebrand & Owen, Electrical Contractor.

In 1946, the Church of the Most Holy Rosary, Syracuse, N. Y., decided to do something about the uneven heat distribution in the three parish buildings.

Here was a church, a school and a convent—modern in appearance, but years out-of-date in steam heating distribution and control.

The two-pipe vacuum steam heating systems used in the church and school—the last word when first installed—were wasteful when compared with present-day standards.

The heating modernization program proposed by the Very Rev. H. C. McDowell and the Building Committee called for conversion to a "Controlled-by-the-Weather" Webster Moderator System. The smaller convent building was equipped with a separate Webster Type "R" Vapor System.

Results: completely satisfying. Church, school and convent are heated evenly and rapidly. The reduction in wasteful overheating has helped to cut fuel costs.

What is your heating problem? If your heating system is without control, or has inadequate on-and-off control, find out about the Webster Moderator System today.

Address Dept. AR-8

WARREN WEBSTER & CO.

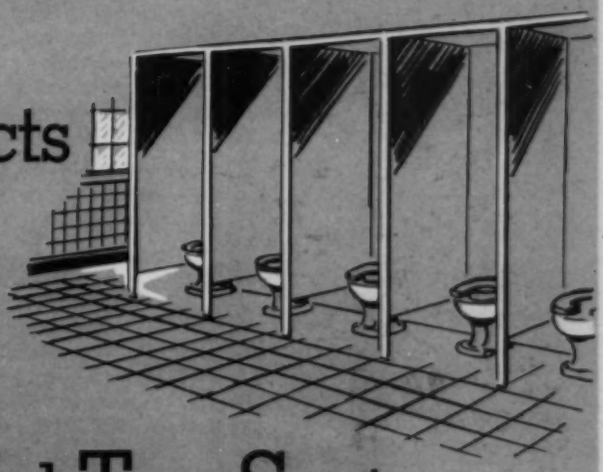
Camden, N. J. : : Representatives In Principal Cities

In Canada, Darling Brothers, Limited, Montreal

Webster HEATING

The greater the traffic

The greater the importance of quality products



Specify Church Mol-Tex Seats

Non-inflammable
Indestructible
Impervious

No. 9900
Church Mol-Tex Seat

See "SWEETS" for details

Church Seats

"THE BEST SEAT IN THE HOUSE"

C. F. CHURCH MFG. CO. HOLYOKE, MASS.
Division of American Radiator & Standard Sanitary Corporation

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

When Manpower *Waits . . .*

Losses pile up every time manpower is forced to lose productive minutes waiting for *doors* to be opened . . . standing by while traffic passes through . . . taking time to close them. You can easily stop these hidden profit leaks.

Manpower doesn't wait

when you specify Kinnear

Motor Operated Rolling Doors.

Push-button switches provide instant, complete, fingertip control of door action at all times, *from any number of convenient points.* A split-second of *manpower* opens or closes the doors; the Kinnear Motor Operator does the rest, automatically.

You also provide *extra space* with Kinnear Rolling Doors. They coil out of the way, safe from damage by wind or vehicle, into a small area overhead. No wall, floor or ceiling space, is used as they open or close. All-steel construction assures extra, low-maintenance service, added protection against fire, storm, theft. Any size, for old or new buildings. Write for details.

The KINNEAR Manufacturing Co.
Factories: 1860-80 Fields Ave., Columbus 16, O.
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in all Principal Cities

Saving Ways in Doorways
KINNEAR
ROLLING DOORS

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 196*)

The asbestos tile is said to be unaffected by grease, oil, alkaline moisture and mild acid solutions.

Because of its flexibility, the tile is reported to conform to uneven floor surfaces and absorb the normal "play" of wood floors.

A wide range of marbleized colors are available. Johns-Manville, 22 E. 40th St., New York 16, N. Y.

WINDOW FAN TIMER

A portable all-electric timer for automatically shutting off window and other portable fans after any pre-selected time is being manufactured by the Paragon Electric Co.

Housed in a compact anodyzed aluminum case, the *Portable AF* is available in two time ranges, 0 to 10 and 0 to 20 hours.

In order to use the unit, the timer cord is plugged into any convenient outlet, and the fan cord is plugged into the receptacle at the bottom of the case. Paragon Electric Co., Two Rivers, Wisc.

FOLDING AWNING

New in home equipment is a folding aluminum awning which may be raised or lowered from the inside. The awning is made of heavy gage aluminum with horizontal louvres designed to nest themselves in a compact fold when raised. Screen pulleys or window crank-winders make inside operation possible.

Because of individually hinged louvres and special design, the *Ron-Del* aluminum awning is said to be adaptable to various window sizes and types including casements. Ron-Del, Inc., P. O. Box 658, Smithville, Texas.

SPONGE RUBBER

Recently developed sponge rubber is said to remedy one of the important defects of conventional types by being flame resistant.

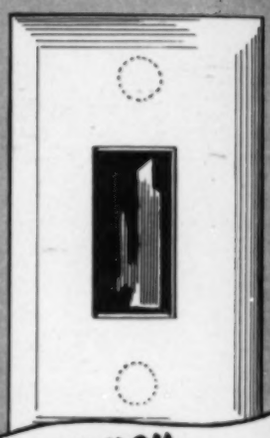
The new sponge rubber can be delivered through a hose, where it sponges at the nozzle; cast in sheets and in open molds; or continuously produced in sheet form.

Adaptable to construction use, the sponge rubber is made in a simple, on-the-job apparatus which delivers the material for insulation, sound-proofing or cushioning. Commonwealth Engineering Co., Dayton, Ohio.

PLASTIC WALL TILE

Four new pastel shades have been developed for plastic wall tile including blue, green, peach and yellow. Formerly only plain or marbleized standard shades were reported available. Pittsburgh Tile Co., Pittsburgh, Pa.

NO TWIST-
NO PUSH-
NO PULL-



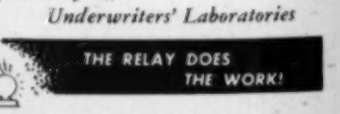
Just TOUCH your lights on!

TOUCH-PLATE
LOW VOLTAGE
LIGHT CONTROL SYSTEM

***At Last* A TRULY MODERN SWITCH**

***Touch* it and the lights go on...*touch* it again and they're off! No more conduits to light switches...multiple controls at negligible cost . . . new streamlined beauty and absolute safety . . . this is the revolutionary new Touch-Plate System for residential lighting control. If you're looking for the newest and the best, let us tell you the whole story . . . just drop us a card.**

Approved by the Underwriters' Laboratories

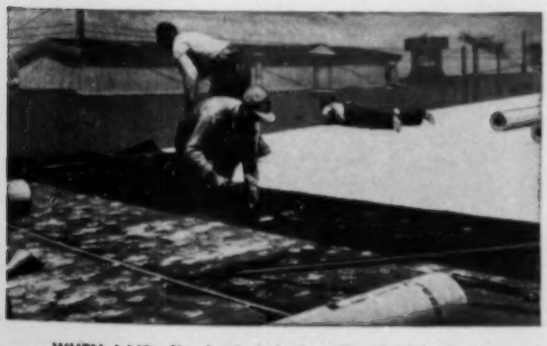


TOUCH-PLATE
DISTRIBUTORS, INC.
2038-42 Bay Street
Los Angeles 21, California

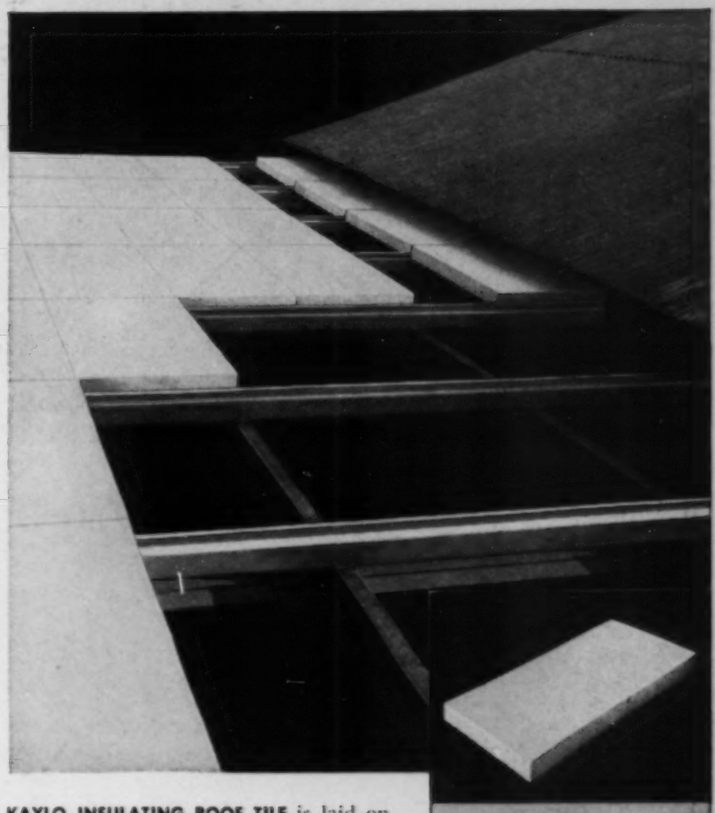
KAYLO INSULATING ROOF TILE is strong—runway shown above supports wheelbarrow traffic during construction.

KAYLO INSULATING TILE is lightweight. Each tile is 2⅛ x 18 x 36 inches in size, weighs approximately 21 pounds.

KAYLO INSULATING ROOF TILE can be cut and fitted with ordinary hand or power tools right on the job.



WHEN LAID, Kaylo Insulating Roof Tile is covered with conventional built-up tar or asphalt roofing. No other insulation is necessary.



KAYLO INSULATING ROOF TILE is laid on sub-purlins. After grouting joints, deck is ready for built-up roofing.

KAYLO®
Insulating Roof Tile

AMERICAN STRUCTURAL PRODUCTS COMPANY
Subsidiary of
OWENS-ILLINOIS GLASS COMPANY

New idea for industrial roofs!

Kaylo Insulating Roof Tile offers advantages never before available in a structural product!

KAYLO Insulating Roof Tile combines in a single material structural strength, extreme lightness and high insulating ability. Composed entirely of inorganic materials, Kaylo Roof Tile is fireproof.

Owners, Architects and Builders all profit with Kaylo Insulating Roof Tile. It furnishes fire protection, cuts fuel costs and is easy to install.

Because Kaylo Roof Tile forms a lightweight and structural deck, less steel is required for roof framework. Cutting and fitting of tiles, when needed, can be done on jobsite, using ordinary hand or power tools.

For further information, mail the coupon today.

AMERICAN STRUCTURAL PRODUCTS COMPANY
P.O. Box 1035, Dept. E-415
Toledo 1, Ohio

Gentlemen: Please send free 8-page illustrated booklet, "Kaylo Insulating Roof Tile."

☐ **Request for sample is enclosed on company letterhead.**

Name_____

Address_____

Firm_____

City_____ Zone_____ State_____

Announcing

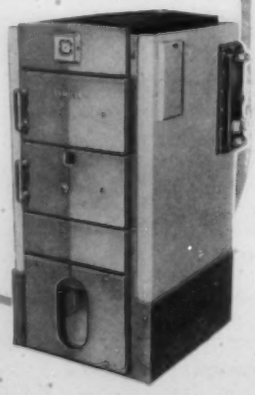
THE NEW 1500 SMITH-MILLS OIL BURNING BOILER for small homes

Again H. B. Smith, the leader in the development of integral boiler and hot water heater combinations, offers a new oil-fired boiler with built-in tankless heater — for the one-bathroom home. It's *compact*, because the heater is completely and neatly contained in the rear section of the boiler, without space-wasting outside heater or tank . . . *efficient*, because it provides a steady and ample supply of domestic hot water . . . *easily installed*, because it's designed for speedy assembly on the job.

But that's not all!

The new Smith-Mills 1500 is economical, efficient, simple in operation, good looking — all in all a clever package, typical of the *modern* H. B. Smith Co.

Be sure to investigate the new Smith-Mills 1500 when home-owners ask for a boiler that delivers the best at lowest cost.



H. B. Smith

CAST-IRON BOILERS

THE H. B. SMITH CO., INC.
67 MAIN STREET, WESTFIELD, MASS.
Offices and Representatives in Principal Cities

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 152*)

pp., illus. The Ric-wiL Co., Dept. 584C, Union Commerce Bldg., Cleveland, Ohio.*

Soda Fountains

Seco-Superex Soda Fountains. Shows typical installations of soda fountains in various arrangements as used for drug stores and restaurants. 4 pp., illus. Seco Co., Inc., 5206 S. 38th St., St. Louis 16, Mo.

Steel Doors

Strand Garage Doors. Folder describes Strand all-steel garage doors, featuring both the canopy-type and receding (track type) doors. 8 pp., illus. Strand Building Products Co., Dept. P-112, 1710 Buhl Bldg., Detroit 26, Mich.

Floor Coatings

Endur Carborundum Floor Coatings. Brochure lists advantages of carborundum floor coatings for concrete floors. Colors available are shown. 8 pp., illus. Endur Paint Co., 46 Cornhill, Boston 8, Mass.

Fireplaces

Successful Fireplaces. Contains details, dimensions and equipment for designing and building fireplaces of all types. A chapter on fireplace history covers ancient, medieval, colonial and early American designs. Other chapters discuss and diagram corner and two-way fireplaces, heat circulating fireplaces and outdoor fireplaces. Tables in book are said to show for the first time the new modular flue sizes as well as the old standards for various fireplace openings. 80 pp., illus. The Donley Brothers Co., 13932 Miles Ave., Cleveland 5, Ohio. 50 cents.

Grease Traps

Murco Grease Trap. Pictures and describes operation of Murco Grease Trap including exclusive construction features. Detailed drawings are given for standard and dish washing machine types along with installation sketches. The booklet has a section with capacity tables and recommendations for various uses. A small unit is especially applicable to septic tank use. 8 pp. illus. D. J. Murray Mfg. Co., Wausau, Wis.

Metal Sheets

Aluminum Sheet and Plate. Technical information for aluminum sheet and plate alloys, gauges and sizes. Topics discussed include cost factors, formability, weldability, riveting, brazing, soldering, machinability and resistance to chemical attack. Specifica-

(*Continued on page 202*)

FOR MODERN DESIGN

The rich, penetrating colors of Cabot's Creosote Shingle Stains *bring out* all the natural beauty of wood siding, shingles or clapboards . . . and their content of 60% to 90% of pure creosote oil — the best wood preservative known — assures that this beauty will be *protected for years* against decay and the attacks of termites.

Cabot's Creosote Stains actually dye the wood, displaying grain and texture to their best advantage. And because pure pigments and no adulterants or fillers are used, colors remain fresh and true, even after long exposure.

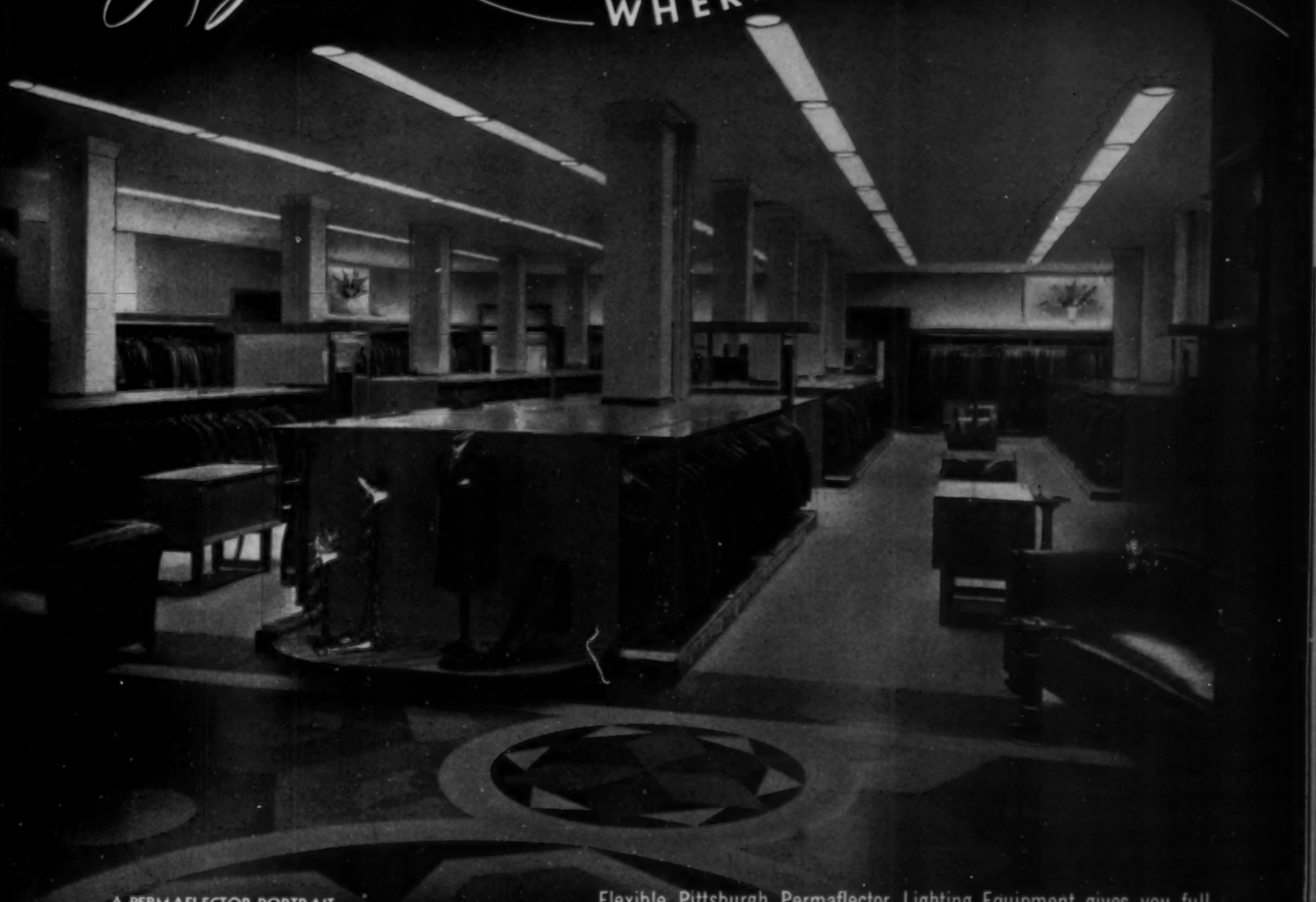
Cabot's Creosote Stains come in a wide range of attractive colors, clear brilliant hues to weathering browns and grays. They are economical — quick and easy to apply — do not peel or blister, even on green wood.

Free Booklet "Stained Houses" contains complete information. *Write Today* for your copy and color card.

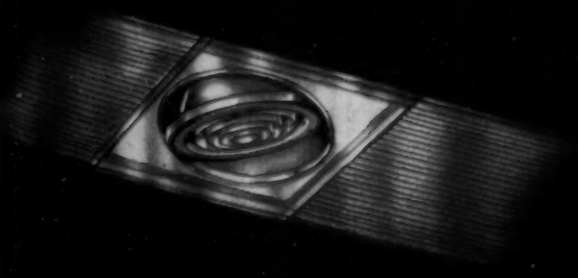
Samuel Cabot, Inc.
2187 Oliver Building
Boston 9,
Mass.

Cabot's Creosote Stains

THE *Light* YOU WANT..... WHERE YOU WANT IT!



A PERMAFLECTOR PORTRAIT
The Kleinhans Co.
Buffalo, N. Y.



COMPANION FLUORESCENT AND INCANDESCENT UNITS

Detail of Adjustable Incandescent Downlight used in-line with the 40-Series Universal Troffers. The new Pittsburgh Permaflector Catalog 48-F lists the complete line of fluorescent troffers, luminaries and companion incandescent units.

"Pittsburgh" Permaflector

Flexible Pittsburgh Permaflector Lighting Equipment gives you full freedom of design in your building and modernization programs. With this scientifically engineered, distinctively styled equipment you create exactly the illuminating results you require.

The complete line of Pittsburgh Permaflector Fluorescent and Incandescent Lighting Equipment meets every interior or exterior installation requirement.

For full particulars on this standard equipment which gives custom lighting results, and detailed illustrations of many application possibilities—send for Catalog 48-F.

PITTSBURGH REFLECTOR COMPANY

OLIVER BUILDING · PITTSBURGH 22, PENNSYLVANIA

MANUFACTURERS OF FLUORESCENT AND INCANDESCENT LIGHTING EQUIPMENT
DISTRIBUTED BY BETTER ELECTRICAL WHOLESALERS EVERYWHERE

Permaflector Lighting Engineers in All Principal Cities

Hillyard
FLOOR TREATMENTS
SAVE
WOOD
FLOORS
TILE
TERRAZZO
CEMENT
LINOLEUM
ASPHALT TILE

Hillyard Floor Treatments SAVE all types of floors in every type of Institution . . . they are Uniform, Dependable, and Economical, and bring out the natural beauty of every type floor.

Send for our new FREE book "Floor Job Specifications" full of helpful hints on economical floor maintenance.

HILLYARD SALES CO's

DISTRIBUTORS
HILLYARD CHEMICAL COMPANY
ST. JOSEPH, MISSOURI
470 Alabama St., San Francisco, Calif.
1947 Broadway, New York 23, N. Y.

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 200*)

tions and definitions. 48 pp., illus. Reynolds Metals Co., 2500 So. 3rd St., Louisville, Ky.*

Water Coolers

The Water Cooler Story. Descriptions of types of water coolers marketed with suggestions for correct type and number of water coolers to meet various requirements. Typical installations in manufacturing plants, department stores, office buildings, filling stations and hospitals. 28 pp., illus. Drinking Water Cooler Manufacturer's Assn., 1107 Clark Bldg., Pittsburgh 22, Pa.

Fluorescent Fixtures

Guthlite "Jacknife Hinge Luminaires." Pictures new fixture permitting maintenance work to be done at floor level. 4 pp., illus. Edwin F. Guth Co., 2615 Washington Blvd., St. Louis 3, Mo.

Masonry

Modular Masonry. Details and instructions for modular masonry layout including color charts and 25 drawings. 50 pp., illus. Stark Brick Co., Canton, Ohio.*

Fans

Hartzell Lo-Noise Fan (*Bulletin 2001*). Includes air delivery tables for all fan sizes and drawings. 4 pp., illus. Hartzell Propeller Fan Co., Piqua, Ohio.

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

Harry Sims Bent, Architect, 1240 South Marengo St., Pasadena 5, Calif.

Joseph E. Blanton, Architect, Box 516, Albany, Texas

Herbert I. Fogelberg, Architect, Garrison District Office, Corps of Engineers, Fort Lincoln, P. O. Box 300, Bismarck, N. D.

Guy B. Hayler, Civil Service Examiner, 151 City Hall, San Francisco, Calif.

Donald F. Hiscox, Technical Equipment Consultant, Bagley Hall, University of Washington, Seattle, Wash.

Dott. Ing. Luigi Ravelli, Via Moncalvo 18, Turin, Italy

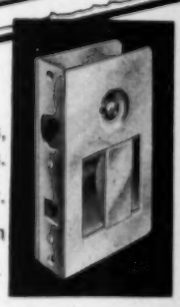
Daniel M. Robbins & Associates, Architects, Kilpatrick Bldg., Omaha, Neb.

J. G. A. Shepard, Architect, 3014 E. 12th, Tulsa, Okla.

Shively's Drafting Service, 112 North 7th St., Room 5, Terre Haute, Ind.

Bernard Wilson, Architect, 21 Summit Ave., Salem, Mass.

THE NEW ADJUSTABLE
RITE-LOCK
FOR SLIDING DOORS



- For Entrance Doors, Bath and Inside Sets.
- Solid Brass Exterior.
- Three Escutcheon Types.

RITE-LOCK adds distinction and convenience to today's sliding doors. It's new, compact, trouble-proof...fits almost any thickness of door. The latching action is positive and releases with a natural sliding movement of the bar in the cup. For convenience and economy a finger pull is formed in the face plate. Look at these advantages:

- *Adjustable in width from 1-1/8" to 1-15/16"*
- *Unit-type requires only a 3-1/2" x 2-5/8" notch*
- *Adaptable to right or left hand doors*
- *Outer case measures only 4-1/2" x 2-7/8"*
- *Pin-tumbler 3/4" diameter cylinder available*

Ask your Hardware Consultant or write us for complete details.

a r
ADAMS-RITE
MANUFACTURING COMPANY
540 W. Chevy Chase Dr., Glendale 4, Calif.

Another Building of Distinction
THE PRUDENTIAL LIFE....

PRUDENTIAL SQUARE...LOS ANGELES, CALIF.

Chose BROWNE folding type aluminum WINDOWS

"Miracles in Metals"

PRUDENTIAL LIFE BUILDING

Modern architecture at its best. Trim, crisp lines . . . and spectacular design. We salute both Walter Wurdeman, Welton Bechett and The Prudential Life for outstanding work in their respective fields.

Walter Wurdeman & Weldon Beckett, Architects

Beautiful Functional Economical

Wherever you find buildings of distinction you'll find BROWNE folding type windows. And . . . there's a reason why! Browne windows are years ahead in design and have long been recognized as a leader in the field. Our department of design will be happy to work with you on any special job. Write or wire for a catalog and/or drafting room standards.

Only the Browne window gives you all these features!

- **100% controllable draft-free ventilation**
- **Built of all aluminum extruded shapes**
- **Both sides of glass can be cleaned from inside**
- **Maximum light and vision**
- **Permanent ease of operation**
- **No maintenance**

BROWNE WINDOW TYPES

Monumental-Psychiatric
Underwriters' Label
Residential

Manufactured exclusively by Universal Corporation in Dallas under the trade name Sealuxe; Browne folding type windows, double windows, side hinged casements, theatre display systems, Therma windows and shades.

See our CATALOG in SWEET'S FILE

Universal CORPORATION

J. P. TRAVIS, PRESIDENT

6710 DENTON DRIVE

Qualified sales representatives in all architectural centers.

DALLAS 9, TEXAS